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NOTES ON PSYCHOLOGY

FROM

LECTURES GIVEN

BY

JAMES McCOSH, D. D., LL. D.

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PREFACE.

Printed notes on Psychology, at first considered a luxury, have now become a necessity ; and they are such old and tried friends, that no very formal bow need be made to the public. This edition has been compiled with great care on the basis of the previous one, together with the best additional notes taken in the lecture-room by several members of the two preceding classes

On almost every page additions and improvements have been made, by which passages before obscure and deficient have been rendered more intelligible and complete. We have added the discussion of the *Automatic-reflex* and *Sensori-motor* systems to the epitome of Dr. McCosh's article on the *Cerebro-spinal Mass* in the March ('78) number of the Princeton Review; also, considerable matter to the chapter on *Conscience;* while the chapter on the *Comparative Powers* has been entirely remodelled and greatly enlarged.

We therefore hope, and, we may add, believe that this edition may meet the wants of the Junior Class to a greater extent than did the editions of either of the former years

EDITORS FROM THE CLASS OF '81.

PRINCETON COLLEGE, Sept., 1879.

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PART I.—PROLEGOMENA.

I.—INTRODUCTORY REMARKS.

Method and Means of Psychological Study.

Psychology, (ψυχή, λόγος,) is that science which inquires, in an inductive manner, into the operations of the human mind, with a view to discovering their laws.

Method.

As in all physical and metaphysical sciences, the method to be pursued is the Inductive Method (ἐπαγωγή).

> There are two methods employed in science, the inductive and the deductive. The deductive method is employed in mathematics and in logic. It proceeds from general axioms which must apply to all particular cases; in other words, from something given or granted to something derived therefrom by thought. In the physical sciences, the inductive method is pursued. It proceeds to collect and arrange facts; to observe the laws running through these facts, and then completes the investigation by ascertaining, by experiment, whether similar facts will occur under the same law. Galileo was the first to use this method, although Bacon perfected it.

The inductive method proceeds thus:

1. It sets out in an orderly manner to collect and arrange (co-ordinate, subordinate) facts.
2. To examine these facts.
3. To discover the laws or principles running through these facts.

In induction we have a means and an end.

Means—Orderly collection and co-ordination of facts.

End—Discovery of Axioms, Causes and Forms.

Note.—Axioms—the laws of phenomena.

Forms—the intrinsic properties of bodies, or that which makes them what they are, (*εἶδος*).

Bacon—born in London, in 1561, published his "*Novum Organum*" 1620, died 1626—originated the inductive method. It had, however, been partially in use in the time of Aristotle. Bacon says that we must gather and co-ordinate or separate facts, then rise to minor axioms (axiom—law, principle), from these to middle axioms, then to major axioms, and, lastly, to causes or forms; (forms—properties of bodies which make them what they are). By the last expression, (*εἶδος*), he means what we now more vaguely term laws, *i. e.*, the principles of forces and order in nature.

The whole difference between the great methods is, that in the inductive, we rise from singulars to universals; in the deductive, we descend from universals to singulars.

Newton's application of induction mixed with deduction can be seen from the following illustration:

He had a great many facts whence he drew a conclusion; this conclusion then served as an axiom or law, whence, reasoning deductively, he found that this law or conclusion did not apply to different cases. So, altering his law until it suited all cases, he thus, by induction-deduction, arrived at the general law for gravitation, viz., that gravitation is proportioned to the weight, and, inversely, to the square of the distance.

It is evident that Bacon meant his method, *mutatis mutandis*, to apply to all branches of science, metaphysical as well as physical. The process must certainly be somewhat different when applied to mind and when applied to matter. The knowledge we gain of mind is by internal inspection, (*i. e.*, self-consciousness;) that of matter, by external inspection, (*i. e.*, sense-perception.) Still, the nature of the human mind not being creative—not perceiving in the abstract, but in the concrete—intuition, therefore, giving us facts, not laws, and the nature of the phenomena themselves being so complicated, we are all but forced to make use of the inductive method in all sciences treatng of the phenomena of nature. It is a decided mark of the rogress which science has made in modern times, to have left ehind it the methods of *a priori* reasoning.

MEANS.

In studying the nature of the mind, we must have recourse to

1. Direct Observation.

   Direct observation, immediate introspection, observance proper, are all one and the same work of one faculty of the human mind, viz., consciousness. Self-consciousness is that faculty of the mind by which we observe the operations of the mind. Man cannot observe the laws of the mind by mere consciousness: he can only observe facts and inductively draw conclusions.

2. Experiment.

   It has been questioned whether the mind can be experimented on. We certainly cannot speak of experiment in metaphysics as we can in physics or anatomy. Still, we can start some subject, and observe what changes and emotions it creates; *i. e.*, we can, instead of letting the mind go on by itself, put it into a certain position and observe how it behaves.

3. The Words, Writings and Deeds of other Men.

   By the thoughts and feelings expressed in them, we can look into the souls of the men themselves, and thus obtain the material for comparison. We cannot observe directly the minds of others, only the results of their thoughts. Shakspeare's knowledge of human nature was so great, that what he says may almost be taken as a fact.

CHAPTER I.

II.—MIND AND BODY.

A. *Evidence of Existence of Mind.*

These arguments are chiefly directed against a certain refined materialism which has been the reigning philosophy of France. It has gained considerable power in Germany, and is the issue to which Mill's Association Theory, Bain's Identification of all thoughts and feelings with the body, Spencer's Development of all things out of an unknowable nothing, Huxley's Physical Basis of life and mind in molecular action, are conducting modern thinkers. It is that form of materialism which accounts for mental action and ideas by molecular action, or some form of material agency.

I. Man has means of knowing the existence of mind as immediate as the means of knowing the existence of matter.

It is often said that man can know directly only the objects falling under his senses, and that he can arrive at the knowledge of mind only by a circuitous process, by inferences based upon the knowledge of the existence of the material world. Others go a step further and deny the legitimacy of this inference, trying vainly to account for mental action by material forces, chemical or electric.

In viewing a landscape, we are conscious not only of the objects in it, but of the mind viewing them. We have immediate and intuitive knowledge of objects on a landscape from intuitive judgments in regard to these objects; we are as certain that there is a mind perceiving as that there is something perceived.

Suppose we are standing upon a bridge, looking down the river, and enjoying the scenery before us. But all the time we are conscious of doing so; we are conscious of a self separate from the scene, and reasoning and judging about it. Suddenly a mother steps to the edge of the bridge and throws a child into the water; we are filled with horror and indignation; we feel ourselves reprobating the conduct of the woman; and, feeling pity for the child who is sinking in the waters, we rush into the stream in the hope of rescuing it. But all the time we are as certain that there is a soul reprobating the unnatural mother, as that there is a mother to be reprobated. We have not more evidence that there is a child drowning in the river, than we have of the other fact that we are cherishing compassion towards it; and we are not more assured that the child is in danger, than we are that we have resolved to rescue it.

II. It follows that we have a positive, though limited, knowledge of mind, even as we have a positive, though limited, knowledge of matter.

There are several doctrines to be met by this position. First among them is that of the spiritualist, who maintains that matter does not exist; that it is simply a projection of mind, which is so constituted that, under the same circumstances, it will act in the same way.

The next doctrine is that of Kant. It refutes the preceding. It is that we have a knowledge of matter as existing, but not beyond that; that we perceive phenomena, not actual objects. But we do know matter as possessed of certain properties which we can define, although we do not pretend to know all the properties which may lie latent in matter. Now, "just as we define matter by positives as extended, as possessed of attraction and other properties, so we may define mind by positive qualities, all of them known to us because we have constant experience of them:" consciousness, intelligence, emotion, conscience, will. When, for instance, by some bad news, sorrow is awakened in the mind, we are conscious, we know, that the mind is capable of being affected by sorrow. Still, we cannot be supposed to know exactly all the properties of mind.

III. As matter cannot be resolved into mind, on the one hand, so, on the other, mind cannot be resolved into matter.

Attempts have been made by Berkeley, Fichte, and others to refine matter, so as to leave little but the name; representing it either as an idea created by the Divine Mind (Berkeley), or as an idea created by the human mind itself. With these men matter is only an exhibition of forces. Others, again, a school of Physicists of the present day, seek to spiritualize (dynamicalize) matter by stripping it of some of its distinguishing properties; such as extension, occupation of space. But all these attempts stand in direct opposition to the intuitive convictions of man; and as we would oppose attempts to resolve matter into mind, so we would set ourselves against the attempt to resolve mind into matter, because

1. The two are made known to us by different organs.

The one, matter, we know by the senses; the other, mind, by self-consciousness. "No man ever saw a thought, touched an emotion, heard a volition. Nor are we conscious, within the thinking mind, of space occupied, or hardness, or color."

2. We know them possessed of essentially different properties. The burden of proof lies with those who deny this position.

We know the one as occupying space, and "exercising certain attractive powers; whereas we know the other as capable of judgment, purpose, and affection." No property of mind can apply to matter.

If we give proper consideration to these arguments, it will immediately appear how impossible it is to bring both matter and mind back to one common source; that no modification of matter will give it intelligence, thought, discrimination. Materialists who profess to explain mental action by material forces, never have so much as a clear idea of the thing to be demonstrated. The physiologist may, by the study of the nerves and brain, come to know what they are, what their chemical composition is. He may say that electricity explains all the properties of nerves (which is a most unsuccessful theory); for electricity will travel along them in a certain manner, nervous action will not. But though he should be successful, all he could show is under what physiological conditions intellect, volition, may arise: he would not thereby throw any light on the subject of intellect and volition. He only shows that there are bodily organisms required by the mind, but he cannot thus account for thought and will. An affection of the pulpy substance, the brain, is one thing; and the determination of the mind to do or not to do, is another thing. An electric force is one thing, and the ingenious thought of Faraday in speculating on that force is an entirely different thing. No doubt, physical and mental action go hand in hand; as the musical instrument sends forth sweet melodies only when touched by a skillful hand, so the actions of the mind can be harmonious only when the body is in a correspondingly healthful condition. "*Sit sana mens in corpore sano.*"

IV. The connection between mind and matter is a mystery.

A mystery is a truth which we are required to believe without fully comprehending it; *i. e.,* it is a truth sufficiently evident to be believed, still incomprehensible. Some doctrines, for instance, are not easy to form a conception of, still we cannot but believe in them. Such are the doctrines of the Eternity of the Divine Existence and the infinite expansion of space. Other doctrines are, to some measure, understood, but we are unable to see in what relation they stand to others. When two phenomena are presented to the mind, it naturally tries to discover some connection between them (life—death); and if we fail to discover this connection, it is not because we are ignorant, but because we have not the means of properly conducting the investigation. It is highly unreasonable to reject such doctrines because their connections are not apparent. It is the same in the present case. We know mind and matter separately; but their connections may, perhaps, always remain a mystery. We know something of mind, something of body; but how they act upon each other we have no means of discovering.

B. *Influence of Mind on Body.*

I. There is an influence exerted on the bodily organs by the will.

The seat of the will seems to be the cerebrum. An animal deprived of this part of the brain may, nevertheless, continue to live and move; but it is incapable of voluntary motion. The will does not act directly upon the nerves, but on the ganglia, at the base of the brain, and thence the motion is carried to that part of the body which is to be moved. The former part of the brain contains the *motor* nerves. The back part contains the *sensor* nerves. Something is transmitted down from the cerebrum to the base of the brain—to the motor nerve; this passes on into action at the rate of one hundred and eight feet per second. Of these intermediate steps between the will and its effect, man is not directly conscious; we *will* only the result, not the entire process.

II. There is an influence exerted on the bodily organs by the attention being directed to them.

1. If the attention is directed to different organs, the result is a different one. By directing attention to them the salivary glands secrete more saliva, and swallowing is obstructed, even stammering may be produced. Attention fixed upon the stomach produces a feeling of weight—of pressure in that region, and the digestion is disturbed.

Note.—Sir Henry Holland, in his chapters on Mental Physiology, has proven it. Deglutition and articulation may be impeded by simply directing and concentrating the attention upon them. A patient frequently injures himself by occupying his mind too much with his ailment. Hence, cures may be effected, or at least helped, by having the attention directed elsewhere. Many people have been entirely cured of sea-sickness, when the ship was in danger of sinking, the attention of the mind being transferred from the nausea to the necessity of preservation. Dr. McCosh said that once he was called to address an audience from a very high and hastily constructed platform; he could look between the boards at his feet, and began to see the peril of his position; immediately his knees began to shake, and he grew dizzy and faint; but as soon as he began to speak, his limbs grew firm and he forgot all about it.

2. With the senses of sight, hearing, etc., the result is directly opposite—they are rendered more acute. In short, different parts of the body are differently affected, happily or otherwise, as it is the nature of the organ to act under or without the direction of the will.

Note.—Where we direct the attention voluntarily, the influence is usually good. When attention is directed to the senses of sight, hearing, etc., the effect is always good. Thus a hunter, going through a wood, sees much more than we do. This frequent attention to a part, unless too excessive, always sends blood to it. Perniciousness is seen in close study and want of exercise. Hence, as above, many diseases are produced by imagination, especially those of the heart. So, also, imagination frequently plays no mean part in their cure. An M. D. once prescribed a fly blister, which was to be applied in a given time unless the symptoms improved; the pleasant prospect before him so worked upon the part affected, through the patient's mind, that he was very much better long before the time of applying the blister came around.

So one with a severe toothache will start for the dentist's, but, upon viewing the dread paraphernalia of the office, will immediately lose the pain and beg to be released. Dr. Beddoes tells of a paralytic, on whom he was about to experiment with electricity; he placed a thermometer under the man's tongue to find the temperature of his body, and the man, imaging it to contain and having to do with electricity, was forthwith cured.

3. Mesmerism, "powwowing," and, to a certain extent, homœopathy, are based on this curious relation of mind and body; but they throw no light upon it.

Note.—The mesmerist must first acquire control over the train of thought of the person to be mesmerized, (which is due to the association of ideas), and then he can proceed to deprive him of the use of his limbs by directing his attention to the part in question. You can free yourself from the power of the mesmerist by concentrating your mind on something else and refusing to think of what he wishes you to. He then has lost your train of thought.

III. There is an influence exerted on the bodily frame by emotions.

It is a well-known fact that certain mental feelings have great effect on certain organs of the body. Fear and joy affect the heart; disappointment and grief, the stomach; envy produces jaundice; passions affect the respiratory organs. Sir Charles Bell maintains that the action of the respiratory organs gives the expressions to the countenance. On these facts, physiognomy bases its judgments.

IV. Mental action generally shows its influence on the body by wasting bodily energy.

Severe mental work, and especially stern exercise of the will, strong emotions, are usually followed by a loss of bodily energy, *i. e.*, by a feeling of weariness. The strain of the will affects more immediately the nervous power centered in the brain. A long night's exertion shows itself in a disturbance of the digestive organs. There is one cure for all these injurious effects of mental activity, viz., absolute calmness.

C. *Influence of Body on Mind.*

The parts most intimately connected with mental action are the cerebro-spinal mass, the cerebrum, and the cerebellum.

Note.—The forces running through these parts are connected with mental action; not, however, the physical parts constituting them.

All these parts acted upon by the mind carry out this action by means of two systems of nerves.

1. The Automatic or Reflex system (Dr. M. Hall).
2. The Sensori-motor system (Sir Charles Bell).

a. Automatic or Reflex System.

The seat or centre is the cerebro-spinal mass, which is composed of white and gray matter; the former being fibrous, the latter vesicular. Along the spinal cord are ganglia, or centres from which the nerves proceed.

Note.—These ganglia are diminutive brains, the same in function as the brain; they are inferior centres referred to the brain.

The active power of the nervous system resides in these ganglia, and not in the fibres of the nerves. A reflex action takes place when an influence from without is sent back by those centres; the animal, however, having absolutely no sensation of it. Hence it is called automatic, inasmuch as there is no voluntary power exerted. Now, the nerves being either nerves of sensation or of motion, the former set answer to carry the sensation to the seat of sensation at the base of the brain.

Thus, an impression being produced on the branches of the ganglion, *i. e.*, on the afferent nerve, the sensation is carried back to the ganglion, and, by the aid of the efferent (motor) nerve, the sensation is again carried outward, and results in motion.

Examples of the action of this system are the circulation of the blood, digestion of the food.

The sensitive nerve is called P. S. (posterior sensor.)

The motor nerve is called A. M. (anterior motor.)

Afferent, P. S., carries sensation to the ganglion.

Efferent, A. M., carries sensation from the ganglion, and results in motion.

b. Sensori-motor System.

This system has its seat in the *sensorium*, which is composed of ganglia along the base of the brain. This is the centre of motion independent of the will, is consensual and quite automatic.

Examples of the action of this system are the closing of the eye at a bright light, vomiting, effect of an offensive smell, sneezing when tickled in the nose.

These differ from the true automatic motions in possessing sensation. They are *actions* with *sensation*.

c. Voluntary Action.

This action, seated in the gray matter of the brain, passes from the white in the ganglia at the base of the brain.

I. FULLER DISCUSSION OF CEREBRO-SPINAL MASS.—Nobody imagines that the bones or muscles of the body can produce thought or feeling. It is the cerebro-spinal mass alone that can be supposed to have any psychological qualities. Let us examine it, beginning with the spinal column and mounting up to the cerebral hemispheres.

1. The *Spinal Column* is composed of white matter, which is fibrous, and of gray matter in the centre, which is cellular. It gives off along the backbone thirty-one pairs of nerves, which are combined in knots or ganglia, which exhibit reflex action. The anterior in the pairs are Motor (designated A. M.); the pos-

terior, Sensor (P. S.) The Sensor nerve, which is afferent, being stimulated, transmits an action to the centre, and there goes out in motion along the motor nerve, which is efferent. Now there is no evidence of there being mental action of any kind in the cord or in the nerves. Mr. Lewes, it is true, speaks of there being unconscious mental action. I doubt much whether there is such a thing as unconscious thinking or feeling. From its very nature, we cannot be conscious—that is, directly cognizant of it. It cannot explain anything which cannot be accounted for otherwise (supposed unconscious acts are simply acts which have passed so rapidly that they are not remembered) by known and acknowledged principles. There is no proof of there being mind in the motions of the ganglia. There is, no doubt, intelligence implied in the very delicate mechanism by which reflex action is produced, but it is that of the Being who fashioned and arranged the whole. The movements are not directly under the control of the will. Professor Ferrier maintains that there is no sensation in the backbone or its appendages. All the parts above may be removed without destroying the proper action of the parts. So far, then, we have no trace of mental action, of will, or judgment, or emotion, nor even of sensation.

2. Going upward, the spinal cord expands into the *Medulla Oblongata*. Here we have a centre of co-ordination of a more complex character. It is concerned in the processes by which infants suck and swallow, and is supposed to be exercised in the production of articulate speech. The co-ordination of respiratory movements is one of the chief functions of the organs.

> "It is farther a centre of the reflex manifestation of facial expression, and some other forms of what are usually regarded as emotional expressions. Vulpian has shown that if a young rat be deprived of all the encephalic centres above the medulla, and if then the toes are pinched, not only may reflex movements of the limbs be produced, but also a cry as of pain may be elicited. This is capable of frequent repetition. If now the medulla oblongata be destroyed, pinching of the toes will cause the reflex movements of the limbs as before; but no cry will be elicited. The cry in this case is a pure reflex phenomenon, and is easily accounted for, when it is remembered that a cry is only a modified expiration, and that the medulla oblongata is the co-ordinating centre of the respiratory movements."

I call special attention to the circumstance that the cry as of pain is no evidence of pain being felt. Our author says:

> "If all the centres above the medulla be removed, life may continue, the respiratory movements may go on with their accustomed rhythm, the heart may continue to beat, and the circulation be maintained; the animal may swallow if food be introduced into the mouth, may react to impressions made on its sensory nerves, withdrawing its limbs, or making an irregular spring if pinched, or even utter a cry as if in pain, and yet will be merely a non-sentient, non-intelligent, reflex mechanism."

3. Rising higher, we come to the *Mesencephalic Centres* (Corpora Quadrigemina). These are the seat of more complex and special co-ordinations, involving very wonderful adaptations, and the reflex expression of emotion produced by the action of the special senses. Carpenter regards the meṣencephale as the *sensorium commune*, or seat of sensation, and the source of what is called sensori-motor, or consensual action—such as sneezing, which is not dependent on the will, and cannot be produced directly by a volition; but which is felt, and is so, our author maintains, because the act reaches a sensory centre in the brain. He does not allow that this action has in itself any sensation; and he asserts that the plaintive cry elicited by pinching the foot of a rabbit may be merely a reflex phenomenon, not depending on any true sense of pain, and that the leap to the side which the brainless frog makes so as to avoid an obstacle may be merely the resultant of two simultaneous impressions, the one on its foot, and the other on its retina.

4. The *Cerebellum* was regarded by the phrenologists as the centre of sexual appetite, but this view is not confirmed by accurate research. Our author doubts whether, as is often asserted of late years, it is the special centre of co-ordinated action. Ferrier allots to it the function of equilibration, which is paralyzed when the organ is totally destroyed, and may issue in falling or rotary motion, according to the part affected when it is diseased. He maintains that neither sensation nor voluntary motion need be affected by disorder in the cerebellum.

This may be the proper place to call attention to a process which takes place in the *Pons Varolii* and *Crura Cerebri*.

There is a decussation or crossing of the various sensory (so-called) and motor parts. Above this, destruction of one side causes paralysis of motion and sensation, not on the same, but on the opposite side.

The *Crura Cerebri* pass into two great ganglia situated at base of the brain, where they are inclosed and concealed by the cerebral hemispheres. These are believed to perform very important offices in connecting the brain proper with the organs that lie farther down.

The *Corpora Striata*, it is agreed, have motor functions. Destructive lesions of this organ in man, in dogs, and other animals, produce hemiplegia of the opposite side, owing to the decussation just spoken of. Sensation, meanwhile remains unaffected.

There is a considerable diversity of opinion as to the functions of the *Thalama Optici*. Carpenter regards them as playing an important part in the sensori-motor tract, and speaks of fibres as ascending from the sensorium to the cortical layer of the cerebrum, which is thereby sensorially stimulated or affected. Ferrier writes somewhat hesitatingly. There are undoubtedly cases in which injuries of the optic thalamus have been associated with diminution or abolition of sensation in touch, sight, hearing, taste, and smell, in one form or other, on the opposite side of the body. He holds that the thalamus contains the sensory paths of all the nerves of sensation which take their origin below the crura cerebri. The sensor and motor paths seem to unite about this place, and lesions of different parts of the thalamus seem to produce somewhat different effects. The motor tract has become completely separated from the sensor in the corpora striata. He holds it to be physically impossible that sensation should continue after the total destruction of the optic thalami.

But our author insists once more on the fact that mere reactions to sensory, or rather afferent actions, are not indications of true sensations. He maintains that up to this place, up to the thalami optici and corpora striata, there is no evidence of will or even of sensation. This declaration, however, is to be taken along with the very important doctrine, that movements at first requiring true volitional effort "tend to become automatic by repetition; and the less varied and complex the movements, the more speedily does the automatic organization become established." He reaches the conclusion that "the corpora striata are the centres in which these habitual or automatic movements become organized," and that "the optic thalami play the same subordinate *rôle* to the sensory centres."

5. *Cerebrum.*—So far as we have yet gone, there is no proof of any mental act, nor even of sensation. Cut off the cerebral hemispheres from above, and there may be many movements as adaptive as if they had been done by the animal's will and intelligence, but there is, after all, no feeling and no purpose. Our author holds that "it has been conclusively demonstrated that in man the consciousness of sensory impressions, or true sensation, is a function of the cerebral hemispheres." I believe he has gone far to establish this most important truth in opposition to those who, like Carpenter, find the tract of sensation at the base of the brain.

His definition of sensation is approximately correct: "It is the consciousness of an impression.' I do not like the word "impression." I believe that "affection" would be better. But he is surely right in saying that in sensation there is consciousness, or an immediate mental act, and this, I may add, a cognitive act; it is the knowledge of an affection of the body. He maintains resolutely that "sensation is a function of the higher, that is, cerebral centres," and quotes Flourens, who was of opinion that "sensation proper was abolished by the removal of the cerebral hemispheres."

II. LOCALIZATION.—Our author goes farther than this: he thinks he can localize, in the gray matter which composes the cortex or periphery of the brain, the centres of the various senses. At this point he is opposed by many eminent physiologists. His experiments will require to be repeated, and his conclusions tested by competent men, before they can be regarded as fully established. But he seems to me to have proven his positions provisionally and approximately. I use this guarded language because I believe that, while the senses have to do with the centres allocated to them, there may be need of more investigation to determine the precise function of the centres. It is surely quite conceivable that the sensation which is so diffused in the lower animals may become differentiated and localized, in the higher animals and in man, in special cerebral organs, which, however, it may perhaps have to be added, are not so differentiated as not to be mixed up with other functions.

1. We may begin with the *Organic Sensations* or *Visceral Sensations*. The cerebral centres of these are supposed to be in the occipital lobes. Cut off these, and the animal continues to see, hear, touch, taste, and smell as before, and can walk, run, jump, and use its limbs with perfect power and co-ordination. But the relish and the appetite for food are gone. It has to be added that thirst, which is a tactile sensation, may remain. But place food before the animal, and it has no inclination to taste it. The occipital lobes are thus the centre of those visceral affections, which, as healthy or morbid, do so affect our vague feelings of well or ill feeling, which are apt to constitute no inconsiderable portion of our happiness or unhappiness, and make our temperament and our tempers placid or irritable.

2. *Touch* is represented as having its centre in the hippocampal region. "Destructive lesions of this region abolish tactile sensation on the opposite side of the body. When the right hippocampal region is destroyed, sight and hearing are unimpaired, but cutaneous stimulation, by pricking, pinching, or pungent heat, sufficient to cause lively manifestations of sensation, when applied to the right side of the body, failed in general to elicit any reaction whatever on the left side, whether face, or hand, or foot."

3. *Smell* and *Taste* are supposed to have their centres, not easily distinguishable, in the subiculum cornu ammonis. "Irritation of the subiculum, in the monkey, cat, dog, and rabbit, was attended by similar phenomena in all—viz., a peculiar torsion of the lip and partial closure of the nostril on the same side. This

is evidently the outward expression or reflex indication of the excitation of subjective olfactory sensations of an intense character."

4. *Sight* has its cerebral centre in the gyrus angularis. It seems that the eye, with all its coats and humors, and the retina and the optic nerve, might be all entire and in a healthy state, and yet there be no vision whatever. In order to sight, the action must go up to the cerebral centre. "Destruction of the angular gyrus on one side causes blindness in the opposite eye. The loss of vision is complete, but is not permanent, if the angular gyrus of the opposite hemisphere remains intact, compensation rapidly taking place so that vision is again possible with either eye as before. On destruction of the angular gyrus in both hemispheres, the loss of vision is complete and permanent."

5. *Hearing* has its centre in the superior temporo-sphenoidal convolution. In the experiments conducted, it was found that when these were not destroyed, the other senses, such as touch, taste, smell, and sight, were not impaired; but in the experiments there was no response to the usual forms of auditory stimuli. The animal was perfectly awake, and looking around, but was quite unmoved by loud calling, whistling and knocking.

6. Our author speaks much more loosely and hesitatingly about the *Frontal Lobes* of the brain. Their functions have not been determined either by the method of electrical excitation or that of destruction:

> "Removal or destruction by the cautery of the anterior frontal lobes is not followed by any definite physiological results. The animals retain their appetites and instincts, and are capable of exhibiting emotional feeling. The sensory faculties—sight, hearing, touch, and smell—remain unimpaired. The powers of voluntary motion are retained in their integrity."

We know for certain that the frontal lobes have a connection with motor ganglia, as the corpus striatum and motor tracts. It is probable, he thinks, that they may be specially the seat or centre of higher intellectual acts, as phrenologists maintain; but he gives no proof, and does not profess to have any. He is able, however, to allot to them a very important function, what he calls "inhibition:"

"Though not actually motor, they are inhibitory motor, and expend their energy in inducing internal changes in the centres of actual motor execution."

"The removal of the frontal lobes causes no motor paralysis or other physiological effects, but causes a form of mental degradation, which may be reduced in ultimate analysis to the loss of the faculty of attention. The powers of attention and concentration of thought are, further, small and imperfect in idiots, with defective development of the frontal lobes; and disease of the frontal lobes is more especially characteristic of dementia, or general mental degradation. The frontal regions which correspond to the non-excitable regions of the brain of the monkey are small or rudimentary in the lower animals, and their intelligence and powers of reflective thought correspond. The development of the frontal lobes is greatest in man, with the highest intellectual powers; and taking one man with another, the greatest intellectual power is characteristic of the one with the greatest frontal development."—[For fuller discussion, see *Princeton Review*, March, 1878].

Influence of Body on Mind.

I. Dependence of mind on senses.

It is only through bodily substances that we can gain knowledge of the outer—the material—world. (Rate of sense-perception is one hundred and forty-three and thirty-two hundredths feet per second. Sight is the most rapid, hearing next, then touch).

II. Dependence of mind upon brain.

Mind has, unmistakably, some connection with the brain, the spinal marrow, the nerves. Aristotle already knew that the mind is spread "throughout the bodily frame." Sir Wm. Hamilton says that sensation may be considered either as in the mind or in the body, as it seems to be the connecting link. So, in thinking, it is not so much the body which is needed, and which is worn out, as the forces permeating the body. Mental forces are correlated with the physical.

III. The train of thought and feeling is affected by the bodily states. (Action and Re-action).

A disaffected spirit affects the stomach not a whit more than a disaffected stomach affects the spirit. A certain expression of face denotes the corresponding feeling, as a child in ill temper.

a. Every mental state and affection seems to have a corresponding bodily state and affection.

Every mental affection is followed by a corresponding change in the chemical matter of the bodily organism, (transposition of cells).'

b. By the law of action and re-action, it follows that every mental state has a bodily state which it tends to produce; and every bodily state again tends to produce its own mental state.

There are innumerable instances which might be cited to illustrate this position. Sir Isaac Newton, *e. g.*, by looking at the sun, produced such an affection in his brain that he saw the sun whenever he looked at a large object. The German poet, Goethe, closing his eyes, could see flowers of the most fantastic forms and colors, constantly undergoing changes. But he could dismiss the vision at will. Disordered organism is most frequently the cause of these visions, etc. Sounds are frequently heard, specters seen. One man got so far in this, that when he met a friend, he always must touch him in order to convince himself whether what was before him was a ghost or flesh and blood. "Second sight" is similar. When such a disorder reaches a very high degree, it is called insanity. The disorder may be brought on, not only by mechanical causes, but also by dominant ideas, favorite fancies, etc. Such, no doubt, was the cause of the apparition which Brutus had at Philippi. Weak persons are most liable to disorganizations of all kinds, and the farther they go in their unhealthful state, the more they lose all capability of distinguishing the true from the false. Often, also, in an apparently healthful state, the mind is still, as well as the body, in a curious condition, in consequence of some outward affection. Here, then, we have the explanation of clairvoyance, mesmerism, etc.; all which tend only to turn the twilight into complete darkness.

CHAPTER II.

THE MIND AND ITS FACULTIES.

III.—MIND.

Introductory Remarks.

It is the natural tendency of man—a tendency it is which speaks of a wise Providence—that he meditates on things without before he turns to those within. The room is ready, furnished with the most costly furniture—an exquisite masterpiece of the all-knowing Workman—but before we can behold all the beauties which it contains, we must open the shutters and let the light from without enter. The infant first exercises the sense of perception in order to furnish the mind with that knowledge which is necessary for the most ordinary wants. There is as yet little reflection. When this begins—when, for the first time, the *Ego* mingles with the *Non-Ego*—is hard to determine. With some children, this process begins at the age of six or seven; with others, not before ten. From twelve to twenty, however, there is generally a strong craving to learn something of the mind within, to know something of the power which has enabled the senses to do their work. Some instances there are when this desire began at an earlier age, but it is only when a man has gained a general knowledge of history, of the world surrounding him, that he has a right to ask after the agent which has made all these acquisitions for him. All prematurity in this respect results in one-sidedness.

There are several cautions to be observed in entering upon this new field of learning. Take care

1. To leave behind those views and impressions which have assisted us in prior observations.

We now deal, not with matter and its forces, but with perception, consciousness, will, affection, etc., and we must be careful not to attempt to discuss the one by the same laws and rules as the other.

2. To beware of the influence of language, primarily applied to material objects, and then transferred to mental objects.

The science of physics was cultivated before that of metaphysics. Metaphysicians, therefore, were obliged either to coin a new language or to remodel the common language applied to physics and material objects. They did the latter, changing merely the meaning of the word, leaving it its old form. Examples of such words are—

Spirit—*ἄνεμος*, wind.

Idea—*εἶδος*, likeness of form. This word gave rise to a whole world of errors, such as that in thinking, we contemplate an image, a likeness of some object, etc.

Feeling—an affection of the bodily organism.

Understanding—in the literal sense of the word.

Emotion—*e* and *moveo*, literally.

Impression—impression of a seal upon wax. This word, again, was taken up by philosophers, (Hume, etc.,) and applied in its most literal sense, giving rise to a great school of skeptics.

Association—connection of links.

Imagination—reflection of an object in the water.

Conception—grasping together.

Apprehension—*ad* and *prehendo*, literally.

These words, then, must now be strictly separated from the sense in which they are applied to material objects.

FACULTIES (*δύναμεις*).

The first thing to do, when we proceed in an inductive method is the collecting and arranging of facts. Now, it is objected that the mind is a unity, which cannot be parcelled out by any process of mechanism or chemistry. This is, no doubt, correct, but still we may distribute the attributes of the mind, the phenomena falling under its action. Suppose, for instance, a young man, who is supporting an aged mother, is offered, by letter, a lucrative position, where, however, he may be required to practice equivocation, or to work on the Lord's day. Observe, now, the different mental acts which take place while he is reading the letter.

1. Sense—perception—in seeing the manuscript.
2. Memory, in recognizing the characters, combinations, etc.
3. Understanding, in judging about the offer.
4. Reasoning, upon the required employment.
5. Imagination, in picturing to himself the position in which he would be placed.
6. Covetousness, in thinking of the wealth offered him.
7. Filial Affection, as he remembers his mother.
8. Volition, final resolution to accept the offer.
9. Conscience, rebuking him for engaging in a dishonorable work.

This is enough to show that we have—

1. A number of faculties in the mind.
2. That we may classify or arrange them by observing their points of resemblance and difference.

We may therefore justly lay down the following positions:

1. That the mind is possessed of different powers is evident from the fact that different states are found in different individuals, and in the same man at different times.

> Different men have different tendencies, or talents, which may become hereditary. If it is objected that these so-called talents are but a different mode of consciousness, nothing whatever is objected. For how do they come? Cannot they be classified?

2. The mind is not always exercising the same or every faculty.

> In every state of mind, there is more than one faculty at work. I can be gazing out upon some beautiful landscape, and at the same time thinking of some past event, of some absent person. But to prevent misunderstanding, we must add the following positions:

3. These faculties are all powers of one undivided mind.

Imagination is nothing separate, but, as memory, the power of one and the same mind; even as one substance unites chemical and physical powers.

4. It is not to be understood that these faculties are always working separately, successively, and always at different times.

As in matter several properties may be operating at the same time, so in mind several faculties combine to work at the same instant.

5. *a.* It is difficult to give a perfect arrangement of the faculties of the mind.

Like the classification of the material world (for instance, of the species of plants), which is made difficult by one division running into another, so of the faculties.

b. An arrangement may be made which is practical and sufficient, but not perfect. The faculties overlap.

The mind, it must be remembered, is one; but it manifests itself in diverse ways. These different modes of manifestation may be satisfactorily, though not perfectly, classified.

Classification of Faculties.

The want of a classification was felt by the earliest metaphysicians and they all strove to arrive at some satisfactory arrangement, an attempt which has been carried on ever since without an absolutely perfect result.

Sketch of Systems.

Aristotle (384 B. C.) distinguishes between Gnostic (cognitive) and Orectic (motive, appetent.)

The Eleatics (founder Xenophanes) held that mind was composed of (1) *δόζα* (opinion); (2) *αἴσϑησις* (senses); (3) *λόγος* (reason). Such, if any, was Plato's opinion.

The school-men of the Middle Ages drew between Understanding and Will a distinction which still exists in the minds of men when they speak of "head" and "heart."

The Scotch school divides the faculties into Intellectual and Active Powers. But since all powers of the mind may be called active, this division is not exact.

A fourth division, which is made use of by a number of modern metaphysicians, is that into Cognitive, Emotional, and Voluntary (Conative) Powers. But under none of these heads can we place that universally acknowledged power, the moral power.

The classification which is now most popular, and which we shall follow, is that into Cognitive and Motive Powers.

COGNITIVE.

I. Simple Cognitive or Presentative.
    1. Sense-perception.
    2. Self-consciousness.
II. Reproductive or Representative.
III. Comparative.

MOTIVE.

IV. Moral, (conscience).
V. Emotional.
VI. Will.

Simple Cognitive. Gives us knowledge in its simplest form; *i. e.*, immediate knowledge of objects now present.
Reproductive. To this belong memory, imagination.
Comparative. By which we compare, find the relation between two things.
Moral. This is the feeling, found in every man, that something is wrong.
Emotional. To this group belong grief, joy, etc.
Will. The faculty which enables us to choose or reject.

Note.—Gnostic faculties give us knowledge and ideas.
Orectic faculties raise desire and tend to action.

PART II—COGNITIVE POWERS.

CHAPTER III.

I.—SIMPLE COGNITIVE POWERS.

They are called *Presentative*, because they give us knowledge in its simplest, *i. e.*, concrete form, and because the objects are now present.

The *Reproductive* and *Comparative* make use of the simple cognitive and *re*-present the knowledge obtained by the latter.

CLASSIFICATION OF SIMPLE COGNITIVE POWERS.

- **A.** Sense-perception.
  - Smell.
  - Taste.
  - Hearing.
  - Touch.
    - *a.* Touch Proper.
    - *b.* Muscular Sense.
  - Sight.
- **B.** Self-consciousness.
  - Knowledge of our Mind.
  - Knowledge of Self.

A. Sense-perception is the external sense under the simple cognitive powers in opposition to the internal sense, or self-consciousness. Hamilton calls these two faculties the presentative, because the object is present—is presented to them.

> The word "sense-perception" is chosen to avoid the ambiguity which arises from the use of the shorter perception, as in the writings of Dr. Th. Reid.

Sense-perception is to be treated as an act of the mind, the senses acting as instruments. The mind takes immediate cognizce of something external; the self knows the non-self; the *ego*, e *non-ego*. There is involved in this act a knowledge—a gnizance of matter by the mind. It is not an idea that is en, not an apprehension, not a notion, not a belief. There primarily knowledge—cognition of things outside of and ecting the bodily organism. To fully express this, we lay wn the following positions:

a. This knowledge is original.

It cannot be resolved into anything simpler than itself. No doubt we can conceive of such a power which can acquire knowledge without the aid of a bodily organism. But man, constituted as he is, must have the assistance of the organism, which, however incapable of thinking and knowing, is only a means of gaining knowledge. It is the mind itself which has the faculty of knowing immediately, directly, the world without, the world within. If this knowledge were not direct, if we were not possessed of an intuitive knowledge of extension, we should be unable to acquire it by any process of ratiocination—by any reasoning from mere sensation; if it were not in the premises, it could not be in the conclusion.

b. This knowledge is immediate or intuitive.

We gain knowledge immediately, and not through a medium. This does not mean that the affection of the organism is not necessary to rouse the activity of the mind; but by it, through no intervening medium (*tertium quid*), we know the object presented. It cannot, therefore, be by a process of reasoning, of inference, of argument, that the mind comes to the knowledge of external objects presented. But as the knowledge is direct so it is positive.

c. This knowledge is positive, and not phenomenal or relative.

Emanuel Kant originated the theory of the Phenomenality of knowledge. He held that the senses give merely an appearance or phenomenon (Greek sense); that we do not know things in themselves, but phenomena. But, we answer, appearances must be appearances of something.

It is held that knowledge is relative—that we can never know anything except in comparison with another. But we must know before we can compare and discover relation; knowledge precedes comparison; we can know pain and then contrast it with pleasure.

Review of Theories.

The Ideal or Representative Theory.—According to this theory, the mind does not contemplate external objects directly, but merely an idea—a representation of them. It was introduced because it was deemed inconceivable that anything should act on something like itself, and that a *tertium quid*, like both (floating atomic image), was necessary. The theory was originated by Democritus and Leucippus (450 B. C.) by the doctrine that the mind looks, not upon the object, but upon an image (εἴδωλον) of the object. It was then taken up by the Epicureans, and most fully expounded by Lucretius, a follower of that school. The characterizing doctrine of the ideal theory is, that the mind looks upon an image and does not take immediate cognizance of the external world. It has taken two forms, a grosser and a more spiritual.

The Grosser Form.—This is the original form under which the doctrine first appears. It was held by Democritus and Leucippus, of the Atomic school; by Lucretius, of the Epicurean; also, by some Aristotelians. The distinguishing feature of this doctrine is, that it represents the "idea," the representation upon which the mind is said to look, as being a material substance, a kind of effluvia given off by the object. Now, we could, perhaps, persuade ourselves to believe in a material representation of bodily objects; but when we think of sound, of light, etc., insurmountable difficulties must arise. The insufficiency of this theory, therefore, was soon detected, and idealism, in the proper sense of the word, took its place.

The More Spiritual Form.—This form of the ideal theory had its ablest and most ardent defenders during the sixteenth, seventeenth, and the beginning of the eighteenth centuries. "The mind contemplates, not a material object, but a (spiritual) image."

Descartes (1635) distinguishes

a. An affection of the brain. Then this affection is the occasion, not the cause, of an image's being created in the mind.

b. An idea in the mind.

c. The mind looks upon this image (idea).

Malebranche expresses himself rather darkly when he says that the mind looks upon objects through God.

Locke (1690, "Human Understanding,") adhered to the ideal theory.

Berkeley (1709) carried Locke's ideas to their legitimate consequences. If the mind cannot perceive matter in any form; if the knowledge at which we can ultimately arrive is only a knowledge of images in the brain, what proof, then, have we of the existence of matter? What proof that anything in the external world corresponds to these images? In fact, we must be quite indifferent as to whether matter really does exist or does not: for if it does, we cannot perceive it; if it does not, we are just as well off as if it did. As a legitimate conclusion from these premises, Berkeley says that the mind cannot perceive the external world directly, but can only know its own ideas created by the Divine Mind, and not created to deceive us. This doctrine cannot but lead to the denial of the existence of matter.

Hume (1711–1776) the skeptic, was the first who ventured to assert as true all the inferences drawn from the doctrines of the theory. He makes a distinction between ideas and impressions. "All perceptions of the mind are either impressions or ideas; the difference between them is in the degree of force and liveliness of these impressions on the soul." Impressions take place in sensation, ideas in thinking. Now, if the preceding be true, what right have we to suppose the existence of anything but impressions and ideas?

1. To suppose that there is anything between the mind perceiving and the object perceived, is, at the best, an hypothesis.

But, where is that third thing, that idea or sensation? It is not in the senses, nor in consciousness.

2. This hypothesis gives no explanation which cannot otherwise be made more satisfactorily.

3. Instead of making the subject clearer, it makes it more complex.

Inferential Theory.—This is the theory followed by the metaphysicians of France during the last century. The school is also called the "sensation school." Dr. Thos. Brown, of Edinburgh, who died in 1820, was its most ardent defender. According to his doctrine, the steps necessary to a cognition of matter are:

1. An impression on the bodily organism.
2. A sensation in the mind. (Thus far, we all agree).
3. An inference that there must be something outside of the mind, exerting its influence upon it, and corresponding to the impression.

This is but an old error under a new form. It tells us nothing more nor less than that the mind contemplates a sensation instead of the material object. But a sensation is one thing, and a knowledge of an external world is another thing. From the fact that there is an unextended sensation in the mind, we can never infer that there is something extended, outside of the mind, which creates this sensation. Furthermore, no connection whatever can be traced between a sensation and the object creating the sensation. The conclusion, therefore, must contain more than is warranted by the premises, and we must either proceed intuitively or, like John Stuart Mill, confess that we know nothing.

Relative Theory.—Sir Wm. Hamilton and Bain hold that we have not a positive knowledge of things, but perceive them under a relation; we cannot know pleasure except by contrast with pain. But it is simpler to say that we know a thing, and from this knowledge perceive relation. Contrast may add to knowledge.

Natural Realism.—Founded by Reid and defended by Sir Wm. Hamilton. Claims its name because it holds that the mind perceives realities. Consciousness and the natural convictions of man intuitively seem to be in its favor, and it cannot be proven that this natural conviction is a belief acquired from an idea and habit.

> *Note.*—We must be careful about employing the aid of intuition for the confirmation of a truth. But in the present case, we cannot be made to believe that the object is not. The belief, therefore, has the marks of (*a*) universality and (*b*) necessity, which are the conditions of intuitive knowledge.

The theory of Natural Realism is, no doubt, not free from difficulties arising chiefly from the mysterious connection of mind and body.

Natural Realism, therefore, teaches us that we have an intuitive knowledge of objective realties, a knowledge of reality and not of relation.

On the side of Idealism, it is a favorite attempt to overthrow the belief in the validity of these doctrines, to refer to the secondary qualities of matter, and, by proving these to be void of material existence, to suppose the primary qualities also to be illusive. It will be necessary, in order to avoid misapprehension and confine skepticism to its proper limits, to draw certain distinctions:

- I.
  - Sensation.
  - Perception.
- II.
  - Original Perceptions.
    - (*a*) Extra-mental.
    - (*b*) Extra-organic.
  - Acquired Perceptions.
- III.
  - Primary Qualities of Matter.
  - Secondary Qualities of Matter.

I. Distinction between Sensation and Perception.

Sensation and perception are always united: sensation, however, implies neither perception nor belief in something external; perception involves sensation, and is necessarily associated with a conviction of the existence of the objects perceived. Perception is the knowledge of an object presenting itself; sensation is the feeling within the organism, associated with this perception. In perception, we have knowledge of an object that would exist whether we perceived it or not; in sensation, there is no external reality. Sensation and perception always appear in an inverse ratio to each other; that is, when sensation prevails, as in smell, taste, hearing of music, the perception stands in the background; when perception prevails, as in sight, hearing of sermons, the sensation almost disappears.

> When I smell a rose there is both sensation and perception. The odor creates a sensation; that is, it affects me without my thinking of it. Sense-perception implies (1) sensation of the bodily organism, (2) sensation of the mind, (3) thought. This may seem to disagree with "immediate perception;" but every sensation is joined with an immediate perception, or belief in the existence of the external object.

Extra mental + extra organic

II. Distinction between (original and acquired perceptions.)

The question arises, what does the mind perceive? The answers are many, and as vague as the question. Some maintain that it is the nervous system, the sensorium. Still, this cannot be all that we are able to know. Others allow that it may be those objects which come in contact with the bodily frame. This, however, is too narrow. The true answer to the question is, that it is either the bodily frame, or something, coming into contact with it or affecting it.

II *Smell.*—In smell, we do not perceive the object itself, separate from our bodily organism. We perceive the object as in co tact with our bodily frame; or perhaps, and with a high degre of certainty, we may assert that we do not perceive the obje itself, but only our bodily organism as affected. It is, there fore, not the rose that we smell, but we perceive our olfactory nerves as affected by the vapor diffused from the rose; and it is only by a process of reasoning that we know that vapor, which is now affecting our organism, to proceed from a rose. This reasoning is based on experience. An object, in order to be perceptible to the sense of smell, must be in a gaseous state.

I *Taste.*—In taste, again, it is not the object itself which we perceive, but our organism as affected. When I eat an apple, it is not the apple which I taste, but the palate as affected; and only reasoning, based upon experience, can tell me that it is an apple, and not some other fruit, which I am eating. An object in order to be perceptible to the sense of taste, must be in a liquid state.

Hearing.—In hearing, as in the preceding senses, we immediately perceive only our organism as affected; that is, we know directly something in the ear to be affected by something from without, which science explains as consisting of vibrations of the air. By reasoning and reflection, not by intuition, we know this sound proceeds from a trumpet, that from an organ. This very fact, that we perceive our organism as affected, enables us to calculate, by a reasoning based on experience, the distance by the sound, according as the ear is affected in a more or less lively manner.

Touch.—The sense of touch, or feeling, is divided into a number of senses, difficult to classify, but well to distinguish.

1. Touch Proper. or Feeling The nerve of sensation was discovered by Dr. Chas. Bell. The nerves of touch proper set out from the base of the brain towards the periphery of the body; they reach the skin each at a determined point; there is a special aggregation of these points in the mid-finger, lips, and tongue. Wherever the nerve terminates, there sensation is felt; thus, if we prick a nerve which reaches the mid-finger, the pain is localized at the point where the nerve terminates. If we stretch or pinch the ulnar nerve by pushing it from side to side or compressing with the fingers, the shock is felt in the parts to

which its ultimate branchlets are distributed, viz., in the palm and back of the hand, and in the fourth and fifth fingers: and as different fibres are more pressed upon than others, the pricking sensation is felt by turns in the fourth finger, in the fifth, in the palm and back of the hand. A student named Schmitz, from Aix, had his arm amputated above the elbow, thirteen years ago; he has never ceased to have sensations as if in his fingers. Pressure was applied to the nerves in the stump, and Mr. Schmitz immediately felt the whole arm, even the fingers, as if asleep.

"In touch proper, there is a sensation of a particular part of the frame as affected by we know not what, but which we may discover by experimental observation." German scientists very appropriately call this sense the skin-sense, because it is produced by a system of sensory nerves distributed throughout the body, and especially on the surface of the skin. These nerves seem to be most numerous in the middle finger, the lips, and the tongue.

N. B.—This increased sensitiveness may, perhaps, be the consequence of frequent use, causing more blood to flow to the place.

Moreover, when the nerve itself is touched, the sensation is felt in that part of the body which is reached by the extremities of the nerve. The case is recorded of the toll-keeper at Halle, who had lost one arm; twenty years after the loss of his arm, the man would, at times, feel rheumatic pains in the absent limb. Prof. Valentin has observed that individuals who are the subjects of congenital imperfections, or absence of the extremities, have, nevertheless, the internal sensations of such limbs in their perfect state. A girl, aged nineteen, in whom the metacarpal bones of the left hand were absent, assured M. Valentin that she had constantly the internal sensation of the palm of the hand on the left side as well on the right.

The disposition to localize is so deep that it cannot be eradicated; it is instinctive, not acquired. When, furthermore, the peripheral extremities are changed, the sensations are referred to their original positions.

In some cases, when an artificial nose was covered with skin drawn from the forehead, it was observed that the sensation was still felt at the place where the skin was originally situated. But when the communication of the nervous fibers of the new nose with those of the forehead is cut off by division of the isthmus of skin, the sensations are no longer referred to the forehead; the sensibility of the nose is at first absent, but is gradually developed. This implies that the old reference to the forehead has ceased, in spite of the old association, and that the new reference to the nose was occasioned by the sensibility of the nerve, according to the law which makes us ascribe the sensation to the extremity of the nerve.

2. Muscular Sense. The muscular sense was discovered by Dr. Thos. Brown, and is now universally acknowledged. When the mind wills to move a limb, the action is carried along the motor (efferent) nerve, which sets in motion a muscle with a set of bones attached. A sensor (afferent) nerve then carries back to the brain the knowledge, notion, of the motion produced. Hamilton distinguishes between locomotion and sensation carried back. But the two being inseparable and simultaneous, it is better to comprise both under one term, viz., muscular sense.

It is by this sense that we first gain knowledge of the existence of some external object resisting our energy.

All the preceding senses give us the same knowledge, but they do so in an indirect manner, by furnishing us with the materials for inference—for a process of reasoning which results in the knowledge of external existence.

The immense use of the muscular sense is seen in the case of persons born blind, who are by it enabled to determine the shape of an object.

The example of a woman is often quoted who had lost the sensor nerve, but whose motor nerve was perfect. She could nurse her child with perfect ease, but if her attention was called to some other object, she was apt to let it fall.

Note.—Such senses as that of temperature, which we may call a sense, must be referred to the same category as those of taste, smell, and touch proper; they give us knowledge of a sensation within the organism. All outward knowledge gained by them is by inference.

Urmdt, in "Defence of Fundamental Truth," page 173, says, "When we move our members, we come upon external resistances. We observe that these resistances sometimes give way to pressure, but we find, at the same time, that this takes place with very different degrees of facility, and that, in order to put different bodies in motion, we must apply very different degrees of muscular force; but to every single degree of contraction force, there corresponds a determinate degree in the intensity of these muscular sensations. With these muscular sensations, the sensations of the skin, which covers our muscles of touch, so continually mingle, that the intensity of these touch sensations goes parallel to the intensity of the accompanying muscular sensations. We succeed in this way in connecting the degree of intensity of the muscular sensations in a necessary manner with the nature of the resistances which set themselves against our movement."

1st. We will to move an arm.

2d. This passes along an efferent nerve to the muscle.

3d. After the motion, an afferent nerve conveys the information back to the brain.

Sight.—Since the investigation of Berkeley (1709), it is universally acknowledged that by the sense of sight we instinctively know nothing but colored *surface.* The knowledge of distance is not an original endowment of sight, but the result of a reasoning process. That distance is not intuitively determined by sight, is proved by several experiments, the records of which are still extant.

1. Chiseldens' Case. In 1728, Dr. Chiseldens operated upon a young man who had been born blind, and gave him his sight. When the person was first allowed to use his eyes, he thought the objects touched his eyes, as those which he felt touched his skin. He could not form an idea of form and magnitude, and

would often forget and confound objects. Until he had caught the cat and felt her with his hand, he did not know which was the cat and which the dog. He put her down, saying, "So, puss; I shall know you in future." Again, he was perfectly deceived by a picture; finally, he went up and touched it, and, entirely mystified, asked which lied, his touch or his sight.

2. Franz's Case. Dr. Franz, of Leipsic, in 1845, operated upon a man of seventeen years, who had been blind from his birth. The sight of one eye was secured by the operation. Two black lines were drawn crossing each other; he could distinguish them perfectly well. He could describe a square, a circle, a triangle, all in one figure. At a distance of three feet a cube and a sphere were placed, and he was told to describe them. He had some knowledge of mathematics. He thought the figures were a square and a circle; and when these were substituted, he saw no difference. A pyramid was then placed in an oblique position; he looked at it for a while and finally gave it up. This proves that the eye takes in at once surface and superficial figure, but cannot immediately discern solidity. This inability of discerning solidity, however, ultimately consists in inability of determining distance.

3. Trenchinnetti Case. Mr. Abbott, in his work against the Berkeleyian theory of vision, quotes an operation performed by Dr. Trenchinnetti. "He operated at the same time on two patients, brother and sister, eleven and ten years old respectively. The same day, having caused the boy to examine an orange, he placed it about one metre from him and bade him try to take it. The boy brought his hand close to his eyes, ('*quasi a contatto del suo occhio*,') and closing his fist, found it empty, to his great surprise. He then tried a few inches from his eyes, and at last, in this tentative way, succeeded in taking the orange. When the same experiment was tried with the girl, she also at first attempted to grasp the orange with her hand very near her eye, ('*colla mana assai vicina all occhio*,') then, perceiving her error, stretched out her fore-finger and pushed it in a straight line, slowly, until she reached the object." This experiment proves that by sight we have an immediate cogni-

tion of direction, but not of distance. But the question arises whether color is the only thing which we intuitively perceive by the sense of sight. Berkeley maintains that we perceive color only, and that the idea of surface is identical with the time used. This is the opinion of J. S. Mill. But Hamilton has proved that we have intuitive knowledge of a colored surface, because

1. We perceive color.
2. If we perceive color, we perceive difference of colors.
3. Different colors may be placed side by side.
4. Contrasted colors will form a visible line, and thus constitute the outline of a visible figure.

In regard to *original perceptions*, we may, then, lay down the following positions:

1. By all the senses we obtain knowledge of the bodily frame.

   In taste, smell, hearing, we know the organism as affected; in touch proper, direction; by muscular sense, objects resisting; in sight, a colored surface.

2. By all the senses we obtain knowledge of extension.

   Locke (1690) maintained that we know extension by two senses only, sight and touch. Since the investigations of Müller, however, it is acknowledged that since we, by all the senses, know our bodily frame, and since that bodily frame has extension, we therefore must, by all the senses, know extension. Direction, which we know by the muscular sense, implies space.

3. By two senses we know objects outside of our body.

   The first of these senses, that by which we gain our first knowledge of external things, is the muscular sense. By moving the hand we meet with resistance, thus acquiring a *sensus vagus* of our bodily frame. Sight gives us a colored surface, not in, but as affecting the body.

Before passing to Acquired Perceptions, it is necessary to insist on another distinction, viz., the distinction between extra-organic and extramental knowledge. A perception may be external to the mind, or to the bodily organism, or to both. It is clear that, by all the senses, we know things external to the mind; but it is only by the senses, sight and touch, that we perceive things external to our bodily frame. An extraorganic, as well as an extramental, object must always be extended.

We now take up Acquired Perceptions.

Distance always belongs to acquired perceptions.

Animals are very liberally endowed with instincts, and distance seems to be one of them. It was observed that a fly-catcher, immediately after being hatched, began to catch. This could not be the case if the animal had not a knowledge of distance. By means of these instincts, animals are much sooner developed than man; because, what man must learn by experience and observation, the animal seems to have instinctively. The nature of instincts is wrapped in mystery; since indeed, as Beaume remarks, if we want to understand a dog, we must be dog and man together. It is evident, however, that with man, at least, many things must be earned by ancestors and transmitted as instincts. All acquired knowledge of man must rest, ultimately, on some intuitive cognition; and in gaining that acquired knowledge, the various senses aid each other. If animals were born with so little instinct as man has, and still deprived of reason, they would be unfit for existence. Similarly, if man were destitute of that intuitive knowledge which is given him by his senses, he could gain it by no mode of ratiocination. A man, born blind, was once asked what conception he had of scarlet. He answered that he thought it must be something like the sound of a trumpet. He knew that the trumpet was used by the English soldiers, and had also heard that their coats were scarlet. In our primary sensations must be the elements of all our subsequent knowledge. In taste, all we originally perceive is the palate as affected; whatever other knowledge it may give is experimental. In smell, we intuitively perceive only the olfactory nerves as affected. By a process of reasoning, based upon experience, we know from what the odor proceeds; and by a similar process, according as the smell affects the nostrils more or less, we judge as to the distance of the object from which it proceeds. By the sense of hearing, we judge the distance of the sounding object. But this knowledge is by no means instinctive; it is based upon reasoning from the strength with which the vibrations in the air affect our ear. *Direction* is also given by hearing, according to the manner in which the sound reaches the ear; but it is based upon a process of reasoning from the law that, whenever we feel the nerve affected, we infer the objects to be in that direction.

All these senses may be rendered more acute by practice and by the attention being fixed upon them. The cause of this undeniable fact is probably a stronger flow of blood upon the particular part.

Savages acquire more knowledge by hearing than do other men who are not accustomed to employ that faculty so extensively. A blind professor, Mr. Sanderson, could, by feeling, distinguish Roman coins, real and counterfeit. His sense of temperature was so acute that he could perceive every cloud passing over the sun. Two blind men proved to be excellent knowers of horses. The one pronounced a horse blind, judging from the cautious manner in which he stepped. The other discovered that a horse was blind in one eye; he laid his hand, first on one, then on the other, and noticed a difference of temperature. Another blind man could, by smell, distinguish those of his friends who were dressed in black and those who were not. Deaf persons often know what is said by observing the motion of the lips of the speaker.

The most important of the senses in gaining outward knowledge is the sense of sight. As already observed, all we intuitively know by the sense of sight is a colored surface. The same sense is, however, the most powerful means we have of judging the distance, relative and absolute, of objects. There are several conditions under which we are able to form such a judgment.

1. There is a change in the ball of the eye.

Helmholtz has demonstrated how the ball of the eye becomes more concave or more flattened, according as the object we look at is nearer or more distant. This mechanical process of elongating or shortening the long axis of the eye is carried on without an act of our will, simply by machinery obeying unknown laws. We are not even conscious of the change in the muscle; but still, somehow or other, this change furnishes us with the knowledge.

2. Parallelism of rays.

We judge of the distance of an object according to the degree of parallelism with which the rays proceeding from that object reach the eye. When we have to set our eyes inward, in order to distinctly perceive an object, we know that it is near; when, however, the direction of both the eyes is comparatively parallel, we infer that the object is at a distance. The action of the organism, in changing the direction of the long axis of the eyeball, depends upon muscular action, and the knowledge we thus gain is ultimately based upon the sensation created.

3. Binocular Vision.

That is, the observation whether closing the eyes alternately produced any perceptible change in the appearance of an object. For instance, hold a book at a short distance from the eye, the back of the book turned towards you; if you close the right eye, with the left you will see the back and the left side, and *vice versa*. When an object is at a great distance, this change of appearance does not take place.

4. Variation of size.

If we look out upon a scene, we see in the distance innumerable objects of quite considerable size; but if placed near enough to the eye, "a penny will cover the sun."

5. Distinctness of outline.

Owing to the density of the intervening atmosphere, the lines of objects seen at a distance grow indistinct; *i. e.*, color less vivid.

6. Number of intervening objects.

When we look at a tree at the end of a row, at whose beginning we stand, we judge, from the number of trees between ourselves and that particular tree, that it is at a considerable distance. But if we look at an object, between which and ourselves we see no immediate object, we immediately say it is near. In this case, our experience, for on experience we must base all inferences from such appearances, is apt to fail us. Looking over a plain, over a lake, with nothing but air between ourselves and the objects looked at, we often are deceived as to the distance of those objects; they seem nearer than they really are. The opposite kind of deception takes place when we look over a plain covered with snow. In such cases, we must not accuse our senses of deceitfulness; it is our reasoning, accustomed as we are to different circumstances, which leads us to erroneous conclusions.

7. Comparison.

In judging of the size of an object, we are aided by comparison. Distance being size in horizontal position, we may make use of the same means of facilitating our inferences.

Dr. Abercrombie said that persons standing in the door of St. Paul's Cathedral seemed like very small children, whereas they were full-grown people. The mistake arose from the fact that the doors were much larger than ordinary doors. Artists, to distinguish size in their pictures, make use of this principle.

Note.—As to solidity or distance in three dimensions, we know by the eye, according to binocular vision, that there is a difference between a surface and a solid; but, as was shown in the Franz case, what that difference is we learn by experience. Such acquired perceptions add greatly to our knowledge, and are necessary to the daily duties of life. The Idealist and the Skeptic plead the deceitfulness of our senses; they say they deceive us in some things, and are not, therefore, to be trusted in all cases. As an example, it is often brought out that a countryman, on a vessel moving from the shore, is under the impression that the shore is moving away; or that, when we are accustomed to live on land, we are often deceived as to distances on sea. To these and all similar objections, we may briefly answer, "that it is not the senses, that is, the natural and original perceptions of the senses, having the authority of God, which deceive us, but rules formed by ourselves and illegitimately applied. It may be observed that the same experience which leads to gather the rules, may enable us to ascertain the limits of the rules and the exceptions." Thus, the seaman is never deceived into believing that the shore is moving, or even into miscalculating a distance, because he has modified the rule, that when we are at rest, any object, whose image passes over the retina, must be moving.

RECAPITULATION.

Thus far, we have gone over two of the three great distinctions:

I. *Sensation* and *Perception:* perception being defined as the knowledge of the object presenting itself to the senses, whether in the organism or beyond it; sensation, as the feeling associated, the feeling of the organism.

II. *Original* and *Acquired Perceptions:* an original perception being knowledge given us immediately, intuitively, by our senses; an acquired perception, knowledge derived from these original perceptions by inference.

Under this second head, we have made a distinction between objects known, *extramental* and *extraorganic*. We may add to this the distinction between objects within and objects without the organism. But more important than this is the distinction between "objects immediately known as extraorganic and objects inferred as existing and affecting the organism, but themselves unknown."

Explanation.—The senses may be divided into two classes; those which give us a knowledge of the organism itself, and those which give us immediate knowledge of objects beyond the organism. In the first class, all that we know immediately is the organism as affected: the intuitive conviction of causation constrains us to look for an agent that has produced the effect. But whether this agent is to be found in or outside the organism, is a question not answered by intuition. Such is the case with smell, heat, taste, etc. In this searching after a cause, "the senses act as monitors, (and most important monitors they are) of powers working in our bodily frame and in the physical universe around us." "I believe that every one of our senses gives us intimation of powers; such as floating particles, light and heat, which are among the most powerful agencies conducting the processes of the material world." But what odors, sounds, heat, light, are, we can determine by scientific observation only; and science has not yet settled the question as to their ultimate nature. Turning to the second class, we find but two senses, that of sight, and the muscular sense. By the latter we know an object as having three dimensions, and as resisting our effort. "We have thus a knowledge of objects extended and exercising dynamic energy beyond the little world of self." The sense of sight presents more difficulties. We know an object as in its nature extended; but do we know it as in its very nature colored? "The sense of color may be regarded as intermediate between those senses by which we perceive an extraorganic object, and those other senses which reveal merely the organism as affected, but whether by agents within or beyond the organism, we know not." Of the nature of color, we know nothing by intuition. Thus it appears that the sense of color is different, on the one hand, from the knowledge of our sensation of heat or smell, since in these, as also in taste, we do not know whether the cause is within or without the organism, whilst in the former we know it to be external to the bodily frame; and on the other hand, different from the knowledge of an extended surface, whose extension and impenetrability are revealed directly by muscular sense, whilst the nature of color is undiscernible to intuition. "The sense of color combines, in closest unison, the sensation and the perception, the organic perception and the extraorganic." We now turn to the last of the three great distinctions, viz., that between Primary and Secondary Qualities of Matter.

III. Distinction between Primary and Secondary Qualities of Matter.

Primary qualities of matter are such qualities as are common to all bodies, and involved in all our perceptions. Secondary qualities of matter are such qualities as are not properly to be considered qualities of matter, but affections of the organism. From this affection, we argue a cause; the nature of this cause to be determined by physical, not by metaphysical science.

Review of Classifications of the Qualities of Matter.

a. Aristotle gave rise to the distinction between Common and Proper perceptions. By common perceptions, he meant those perceptions which are common to all our senses, *e. g.*, extension. By proper perceptions, he meant those perceptions which are peculiar to but a limited number, or only to one particular one, of our senses, *e. g.*, color, odor, taste, form.

b. Locke, Reid, Hamilton, divided the qualities of matter into Primary and Secondary, but upon entirely different grounds. Locke calls those qualities of matter primary which are inseparable from body, in whatever state it may exist. According to his theory, the primary qualities of matter are, 1. Solidity; 2. Extension; 3. Figure; 4. Rest or Motion; 5. Number. To these he seems to add at another place, 6. Situation, and 7. Texture. The secondary qualities have no material existence in themselves, but are merely powers to produce various sensations in us by means of the primary qualities. To them belong color, taste, smell, etc.; they are the powers which one body has of affecting others. Primary qualities have reality, secondary qualities have not.

Reid gives a different foundation upon which to base the distinctions. "The senses give us direct and distinct knowledge of the primary qualities of objects, and inform us what they are in themselves; but of the secondary qualities, they give us but a relative and obscure notion." According to this distinction, the primary qualities are, 1. Extension; 2. Divisibility; 3. Figure; 4. Motion; 5. Solidity; 6. Hardness; 7. Softness; 8. Fluidity.

Hamilton adheres to this division in the main part; he, however, divides the primary qualities into Primary and Secundo-Primary. His division, therefore is—1. Primary or Objective; 2. Secundo-primary or Subjective-objective. 3. Secondary or Subjective. Hamilton has so arranged the qualities upon two grounds, viz.—1. On the ground of *sense*. The primary qualities of matter are objectively perceived. 2. On the ground of *understanding*. They are conceived in the mind as essential to the notion of bodies. Hamilton represents extension as a necessary constituent of our notion of matter, and evolves this from the two conditions of matter, viz., the occupying of space, and the being contained in space. Thus we have his classification:

I. Occupying space.

$$\text{Extension.}\begin{cases}\text{Divisibility.}\\ \text{Size.}\begin{cases}\text{Density.}\\ \text{Rarity.}\end{cases}\\ \text{Figure.}\end{cases}$$

Ultimate Incompressibility.

II. Being contained in space.

Mobility.
Situation.

Neglecting subordination, we have eight proximate attributes: 1. Extension; 2. Divisibility; 3. Size; 4. Density or Rarity; 5. Figure; 6. Incompressibility absolute; 7. Mobility; 8. Situation. These primary qualities develop themselves from the substances.

The secundo-primary qualities are modifications of the foregoing; they suppose the primary. They are contained under the category of resistance to pressure got by muscular sense. The sources of pressure are co-attraction, repulsion, inertia.

> *Note.*—This enumeration is consistent with science, since it involves, out of view, force and dynamic energy.

Secondary qualities are not qualities of matter, but only subjective affections, as color, heat, sound, etc.

The qualities of matter known by intuition may be divided into three classes:

1. Those which relate to space. Under this head come the qualities of occupying and being contained in space; the eight attributes given above.

2. Those which one body exercises in reference to another; *i. e.*, the properties and forces of matter, such as gravitation and chemical powers. Here we must set aside two extreme, opposite views.

> *a.* That matter is known as possessing no other quality than extension. This view originated with Descartes, and was followed by a number of metaphysicians of his school.
>
> *b.* That matter is nothing but a combination of forces. This so-called Dynamical Theory was introduced by Leibnitz, "who supposed that the universe of matter (and of mind) was made up of monads having power, and to which the mind imparted the relation of space."

Both these views are contrary to our intuitive convictions: the former to that intuition which represents all matter as having and exercising energy; the latter, to that fundamental conviction, which we can never lay aside, that the matter which has force must be extended.

3. Those which the body exercises in reference to the sensitive and perceiving mind. No light has been thrown, by any science, upon the manner of connection between mind and body; whether it is immediate or mediate, whether it is based upon a power in the organism, or whether that power lies in some other agent. "Still, intuition seems to me to say that, connected with the organism, there is a power of some kind to call forth mental action."

CLOSING REMARKS.

The Doctrine of *Natural Realism.*—This doctrine maintains that we have an intuitive knowledge of an objective reality. Now, in order to overthrow this doctrine, the spiritualist calls attention to the secondary qualities of matter, and, from their being void of material existence, supposes the primary qualities to be the same: if reality does not agree with other perceptions, why with this one? Berkeley proves that sound, color, are subjective affections, and infers that extension is also. Kant maintains that, outside of what the mind imposes on matter, we cannot know what matter is. Fichte says, "The mind creates the universe." Dr. T. Reid (1764) cut the knot; he says, "We must brush these objections aside like cobwebs." This mode of procedure may be popular, but it is by no means scientific. The philosopher must prove that an error exists, and then show where it lies; and this can only be done by a searching inquiry based upon distinctions. The objection that we cannot trust the senses, as in the case of the countryman on the vessel, etc., springs simply from a non-distinction between intuition and experience. Another objection, that the doctrine of natural realism overlooks a number of intermediate processes, rests entirely upon a misunderstanding of the doctrine, which does not deny that such intermediate processes are necessary in order to rouse the energy of the mind; but, when once roused, the mind looks immediately upon the object, and not upon an image of the object. As to the objection that the image of an object on the retina of the eye is double and inverted, whilst we see it single and straight, we can only say that our organism is so constituted as to require a double, inverted image, in order to see the object single and straight.

B. SELF-CONSCIOUSNESS. Sense perception and self-consciousness, the knowledge of the external world and the knowledge of the internal existence of self, are the two faculties of primitive cognition. Although we have considered sense-perception first, consciousness undoubtedly stands at the head of all the faculties of the mind, as an attribute of the very essence of the soul. We will be obliged to consider consciousness with two views, viz., first, of discovering what it is; second, of observing what knowledge and ideas are acquired by it.

Even the materialist, inconsistent as he is, speaks of consciousness, and it is evident that he has a very imperfect idea of what he is speaking. We can explain a thing by reducing it to something more simple; but what is more simple, more original, than consciousness? We must, therefore, follow the other method; we must consider its actions, and from this, in an inductive manner, infer its nature.

1. *Consciousness* takes cognizance of self in its present state. Consciousness belonging to the presentative faculties of the mind, the above statement is essential to its nature: and thus, constantly having knowledge of the present state, and, successively of all states of the mind, we may, by the aid of memory, be conscious of a past state; that is, we are conscious of remembering that, at such a time, we were conscious of a certain state of our mind. As there may be different states of one mind at the same time, so consciousness can take cognizance, at the same moment, of several states.

The Scottish school generally maintain that we do not know mind and body, but only the qualities of them. Now, as regards consciousness, we are not conscious of mind as an abstract substance, independent of its qualities. Intuitively, we have knowledge merely of concretes; so by intuition, by consciousness, we know the concrete existence of mind. A general idea of it we can only obtain after we have learned by observation that others have minds also. Nor have we an immediate knowledge of the qualities of mind, as abstractions; but mind knows self as exercising particular qualities. It is this fact which Kant overlooks when he says, "we know the subject self as phenomenon, and not as it is in itself. It is the mistake of Hume, that, when he maintains that mind is conscious of impressions and ideas, he forgets that it is conscious only of self as impressed, of self as entertaining an idea. As in perception, so in consciousness, our knowledge is limited.

2. *Consciousness* is an attribute exercised whenever the mind is intelligently exercised. In this quality, consciousness differs from other faculties of the mind; it is acting whenever intelligence is exercised. It has been disputed whether or not we are conscious whilst asleep. Hamilton tried to test the question by having his servant wake him at unusual hours of the night; he was always aware of a train of thought passing through his

mind. Arguing from this and similar observations, J. S. Mill maintains that there are no mental acts of which we are not conscious. With some modifications, this is doubtless correct. In every mental act there is consciousness, but we do not always remember it. If our attention is suddenly called to it, consciousness is never found missing. It is a similar thing to the ticking of a clock to which we are accustomed; we do not hear it until our attention is called to it, whilst the clock, nevertheless, goes on ticking. *Unconscious mental cerebration* is the term denoting an act of body dependent upon that of the mind as in the above case. Attention is necessary in order to exercise memory.

3. *Consciousness*, through its continuousness and by the aid of memory, gives the materials from which we form our judgment as to personal identity. Among all the changes going on in the mind, there is no break in self-consciousness. This makes it, in distinction from the other faculties, continuous; and, having been conscious of self yesterday, being also conscious to-day, and comparing the two states, we find that we are the same to-day as we were yesterday. There is an act of memory in bringing up the past, and of judgment in forming the comparison.

Hume and Berkeley admitted that we are conscious of mere present impressions; but denied that we can, from consciousness, gain an argument for personal identity. Fichte, denying all reality, maintains that the knowledge of consciousness consists only in knowledge of images without existence: "One dream, without a life to dream of, without a mind to dream." In opposition to this, we maintain that we know self as really existing.

4. By *consciousness*, I may voluntarily take a more special cognizance of mind. In this operation the power of will is involved. It is impossible to entirely arrest the flow of thought; but, by an effort of the will, I can lay a restraint upon it, in order to let it pass more slowly before the internal eye, and view it more closely. No doubt this very effort impairs, to a certain extent, the distinctness of thought (absent-mindedness.) But, as Aristotle walked about lecturing to his scholars, so we all

can follow two pursuits at once. It is absolutely necessary, however, that the mind should be perfectly calm. Consciousness, thus under the control of the mind, is called reflection. Locke defines this as the notice which the mind takes of its own operations. The correct account is that consciousness is the notice which the mind takes of itself in its own operations.

Is consciousness a separate faculty of the mind? It is sometimes stated that consciousness is simply generic of other faculties, and that sensation and the consciousness of it are one and the same. But theories of this nature can only lead to skepticism, because we then have no means of knowing self; and if Brown says that intuition gives it to us, then we may justly ask what gives us the knowledge of this intuition. Hamilton speaks of consciousness as a general, generic name for all the faculties: but it is well to confine it to the idea of self-consciousness. We hold that consciousness is a separate faculty of the mind, and we do so upon two grounds:

1. In consciousness, the object contemplated is different from that contemplated by any other faculty. The knowledge given by consciousness is entirely different from knowledge obtained by processes of reasoning. In consciousness, the object is the Ego; in the discoursive faculties, the Non-ego. We cannot say that consciousness is a conditional faculty.

2. Consciousness is to us a separate source of knowledge and ideas. It is the agent by which self, with all its workings, becomes known to us. It is the ultimate condition under which Mental Science is possible. It would be perfectly impossible for us to form any idea of a Deity, merely by the aid of the senses.

The positions are sufficient to prove that consciousness must be regarded as a separate faculty.

I. *What knowledge is given by the Simple Cognitive Powers, when combined?*

A. By both the simple cognitive faculties, sense-perception and self-consciousness, we obtain original material of all knowledge.

In the first exercise of the mind, there is knowledge. In opposition to this doctrine, the Sensational School holds that the mind begins with sensations, and from these, by the aid of reflection, rises to actual knowledge. But the vague expression, "reflection," is unexplained; the question is—1. What is the nature of this faculty? 2. How does it enable us to rise from sensations in the mind to knowledge of external objects? And it is evident that the very first reasoning must proceed upon sure and absolute knowledge; for what is beyond the comprehension of the premises cannot be justly involved in the conclusion.

This primitive knowledge is certainly not of a determinate and distinct nature, such as it afterwards becomes; it is not scientific, abstract, or general. It is what the schoolmen termed *Cognitio Intuitiva*, *ἐπιστήμη*, in contradistinction to *Cognitio Abstractiva*, *νόησις*, gained by higher faculties; and it is a knowledge subsequently acted upon and enlarged by other powers than those of sense-perception and self-consciousness.

Locke compares sensation and perception to two windows through which light is let into the mind. Aristotle draws an analogy between the human soul and wax susceptible of impressions. But these comparisons are inadequate. If any is admissible, it would be the comparison of the mind to a mirror, since this contains in itself the power of reflecting even when there is no image to call forth the power. Thus, in the human mind, there is an active power, an active susceptibility, far superior to mere sensation or impression, or other passive conditions, which is as necessary in order to perception as the object upon which this power is exercised.

B. This knowledge is of objects singular and concrete.

1. It is of the individual, *τὸ ἕκαστον*, that we first gain any knowledge, and not of generalities, *τὸ καθ' ὅλον*, nor of things as belonging to, or in their relation with, other more comprehensive forms of existence, *ἐν μείζονι*. Thus we do not intuitively look upon virtue or vice in their significance as abstractions, but, primarily, we look upon this or that object or action as receiving the approbation or reproach of our moral sense. Any other mode of explanation must be directly opposed to what our consciousness constrains us to believe with regard to our primary perceptions.

2. Concrete. [Derivation: (*a*) concerno (subjective); (*b*) concresco (objective.)] All intuitive knowledge is of objects as they are, not of objects under a certain aspect, with a view to certain of their attributes, *ἐν μείζονι*. Thus we do not intuitively see the table as separate from its form, or conceive of form as abstracted from any object of material existence; but the two are primarily combined, and can be separated only by a process of abstraction carried on by means of the higher faculties of the mind. The same as of matter by sense-perception, we know of mind by self-consciousness; it is of the substance as exercising attributes that we gain all primary knowledge. This view must be diametrically opposed to the doctrine that the mind begins with impressions.

C. This knowledge is of objects as possessing being, *τὸ ὄν*.

1. We do *not* know being in the abstract by the simple cognitive powers; this is the subject of speculation by the higher powers. Still, metaphysics, when thus speculating, must always recur to our primary perceptions. Little can be said about being; and, since the time of the Eleatics, 500 B. C., the mistake of philosophers has been that they attempted to say too much about it. The reason lies, not in the complexity, but in the extreme simplicity of the matter, which admits of no reduction to something more simple and primary. As light darkens when we gaze upon it, so, if we too largely dwell upon these abstractions, we land ourselves in confusion and contradiction. We cannot perceive being, as separate from some certain mode of existence; our knowledge here is limited, but positive.

2. We *do* know being as independent of our cognition. I look upon an object within or without the body: I know that it has being; but not the fact that the mind looks upon it, makes the object to have real existence; the knowledge of the object does not create the object. On the contrary, we know, and our intuitive convictions go to prove, that substance has existence *independent of the contemplating mind.*

This ground must be taken in opposition to certain errors which first arose in Greek philosophy, and which have been successively taken up by modern thinkers, especially of the skeptic school. Hume and Kant hold that all the mind can perceive is of relations and phenomena lacking real existence; in other words, they resolve all material existence into mere projections of the mind. But this theory is most emphatically denied by our intuitive knowledge of material objects, which the mind at once pronounces independent in their existence. However, this *permanence* does not amount to indestructibility, whilst it precludes the possibility of conceiving of matter as a fleeting idea or impression, existing only when the mind attends to it.

D. We know mind and body as exercising potency.

We know everything as exercising power. In every condition of matter, in every mental state, potency is involved; and this notion of power is gathered in the primitive knowledge of self and not by subsequent experience. Resistance of matter and volition in mind come under our notice among the first things observed. But, while it is just to say that matter has potency, has extension, it is just as evidently false to say, with Leibnitz, that matter is force; or with Descartes, that the essence of matter is extension. Both attributes are essential to all matter; and where one is wanting, matter cannot be.

Being, Permanence, Potency, then, are cognized in all matter and mind; and it is this which constitutes substance. Two derivations are given to this word "substance," each characterizing a school of Philosophy. Substance is derived—

1. From *sub-sto—id quod substat accidentibus*, making it a sort of substratum underlying all phenomenal existence.

2. From *sub-sisto—ens per se subsistens*, that which has independent existence. In the latter sense, it is accepted by Natural Realism and characterized by the three marks of being, permanence, potency. Where these are, there is substance, whether it be in mind or body: in the one case, the senses being our guide; in the other, self-consciousness.

II. *What knowledge is peculiar to each of the Simple Cognitive Powers?*

A. Knowledge peculiar to Sense-perception.

1. By sense-perception we know externality; that is, things

as external to the mind, the thinking Ego. If we admit that there is such a thing as a perceiving mind, then it is but a logical consequence that there is such a thing as an external object perceived.

2. By all the senses we know direction, which implies extension. By all the senses we have a knowledge of our own extended bodily frame, and this extension is implied in the direction in which we let our intuitive organs pass, and which itself is intuitively known.

Motion, also, is intuitively perceived; but there is something more than mere sense-perception involved in this operation of the mind. Whilst the movement of our intuitively localized organs will be especially apt to give us the idea of motion, and whilst the passage of an image over the retina will also greatly contribute to the acquirement of this notion, there must still, additionally, be a brief exercise of the memory, in order to complete and perfect the perception.

B. Knowledge peculiar to Self-consciousness.

1. By self-consciousness we know personality. This is higher than the knowledge of mere being, which it implies. By self-consciousness we have a special apprehension of self as something distinct from the material objects surrounding us. *Personality* is something which cannot be strictly defined, but may be brought to our view by abstraction. It is, however, a conviction which makes man feel himself independent of all things outside of the mind; a conviction which is essential to manhood.

2. By self-consciousness, we have direct knowledge of mind. Numerous philosophers, while freely admitting the existence of mind, deny the possibility of our knowing it by direct means. Many even disbelieve that we can arrive at a knowledge of mind by a circuitous process of investigation: a doctrine which, taken literally, is correct; for our means of knowing the mind must be direct, and can be nothing else. It is the great merit of Descartes that he has taught men to look at their own minds, and to believe in the possibility of doing so, by means of this instrument.

The knowledge of personality, and of mind directly, is what we have from self-consciousness.

III. *General Remarks concluding the subject of the Simple Cognitive Powers.*

In his "Essay on the Human Understanding," first published in 1690, Locke maintains that the mind derives all its knowledge from sensation, *αἴσθησις*, and reflection, two terms which are probably synonymous with sense-perception and self-consciousness. "External and internal sensation," he says, "are the only passages of knowledge to the understanding." He thus represents the soul as a dark closet, into which light is let by these two openings. His mistake evidently lies in his failing to have an accurate idea of the amount of knowledge given by the two faculties, to which he eagerly attributes all our knowledge; and every such measurement, if rigidly carried out, must show the insuperable difficulties which everywhere beset the follower of the Lockeian theory. All our thoughts do not dwell on that alone from which we can receive a bodily sensation. Ideas of time, of the infinite, of moral good and evil, are derived from utterly different sources. When we study the faculties of the mind separately, we dare not be led to think that they also act separately or in any distinct order of arrangement. Many operate simultaneously; many operate before, which are here placed after, others, and *vice versa*.

CHAPTER IV.

THE REPRESENTATIVE POWERS.

We now turn to the second group, the Reproductive, Re-presentative Powers. They are called Reproductive because they produce again and again what has been previously before the mind.

II. Reproductive Powers.
  1. Retentive Power.
  2. Recalling Power, phantasy.
  3. Associate Power.
  4. Recognitive Power.
  5. Compositive Power.
  6. Symbolic Power.

General Remarks. This division is very similar to, though not identical with, Hamilton's arrangement. The nature of each power is briefly this:

1. Retentive Power (Hamilton, conservative) enables me to retain the knowledge which I have gained by the senses or by reflection,—to keep what has been experienced.

2. Recalling Power (Aristotle, *Φαντασία*) enables me to recall, by means of an image, what I have thus retained in my mind.

3. Associate Power brings up the retained ideas or notions according to certain inviolable rules.

4. Recognitive Power (not stated by Hamilton) enables me to recognize an idea or notion as having been before the mind in time past.

5. Compositive Power places old things into new situations, gives old things new forms and relations.

6. Symbolic Power (to which language belongs) enables me to think or recognize things by means of signs.

1. Retentive Power. This is that power by which we are enabled to retain what has once been before the mind, so as to reproduce it under certain circumstances. It is not an *original* power; it can produce nothing absolutely new, but it can bring before the mind that which once has passed before it. It is properly a capacity, rather than a faculty. It is this property of the retentive power which has suggested the idea of speaking of it as a store-house of notions and thoughts, and which has led many speculators to represent it as such, not merely in a metaphorical way of speaking, but as being, in its very nature, a repository of sensations; an idea which is purely inconceivable. It has often happened that physicists have thought they could find that "chamber of memory," and with microscopic investigation analyze a notion. But while such metaphors can only tend to confuse the matter, it is evident that the mind has a power of this nature; a power, however, which cannot be accounted for; that is, which cannot be resolved into something simpler.

It has been asked, "what is the condition of an idea thus retained, but not recalled? Is it dead, or what is it?" The answer to this is simple enough. An idea exists as an idea only when it is before the consciousness. But then the question arises if that is so, how has the mind the power of retaining the idea? When the mind once has contemplated an idea, it retains it in this sense, that it is able henceforth to reproduce it under certain circumstances and upon certain conditions being supplied; but the thought is not living in the mind as a thought, for such it becomes only when it comes before the consciousness.

This power depends upon certain conditions, viz.:

1. *Upon the amount of mental exercise in the original perception.*—It has been asked whether the mind retains everything. Now, it is undeniable that often things which have apparently passed away forever, may suddenly be brought up by some condition of the body or some complication of external circumstances. Upon this is founded the idea that the mind remembers everything; but it does not seem to prove this absolutely. Without denying it, however, we maintain that it is evident that the facility of recollection largely depends upon the amount of mental energy spent in the original perception.

2. *Upon the state of the brain.*—This calls our attention to a

set of curious phenomena, illustrating the influence of mind on body and *vice versa*.

In all thinking, in every operation of the mind, there must be, according to Carpenter, some cellular disposition; especially, and perhaps always, in the cells in the periphery of the brain. This process, which is totally removed from our consciousness, Carpenter calls Unconscious Cerebration; a phrase which is admirable as indicating a fact, but worthless if intended to explain something. Memory depends, to a certain degree, upon this cerebration; this is not a concession to the materialist, but this cerebration is the result of mental action.

Note.—Review { Dr. Abercrombie's "Mental Powers."
Dr. Beattie's "Memory and Imagination."

From these singular facts it appears to be evident that the reproductive powers, in order to act in the right manner, require the concurrence of the brain. The act of recalling, &c., is undoubtedly a mental one; but it exerts its influence even upon the material substance of the brain. The cause, however, and the ultimate nature of this necessary co-operation are wrapped in mystery, and we can only infer its existence from certain undeniable facts. A man who had not lost the use of his eyes, but had a diseased brain, was unable to recall any scenes. A preacher, by paralysis, lost all recollections of exactly four years. Some persons, whose brains were in an unhealthy condition, remembered objects quite well, but forgot their names. Dr. Gregory mentions a lady thus affected; he also mentions cases where persons lost the recollection of certain things, distinctly remembering others. One of the most remarkable cases is that of a young man, who, having been for many years unable to speak the Welsh and French languages, was seized by a sickness which affected his brain; a circumstance which at once gave him back the power of speaking the long-forgotten tongues. Upon his recovery, however, he forgot them again. In this case it appears that the cerebration left something behind, which, when affected by the illness, called back the recollection of those languages. A clergyman with a diseased brain, spoke nothing but Hebrew, that being the last language he learned. A young girl, who repeated nothing but Hebrew, had lived a short time with a learned Hebrew Rabbi. (Carpenter's "Mental Physiology," pg. 430. Baron St. Leonard's wards.) M. Brocat attributes this "aphasia" to an unhealthy state of the left lobe of the brain, which he closely connects with the power of language.

2. Recalling Power, Imagining Power, Phantasy.—This is the power which enables us to call up, by means of a phantasm, that which has been before the mind in time past.

In sense-perception and self-consciousness, the objects to which our attention is called are present before us; in the recalling power there is no actual, material object to look upon. What appears before the mind is an image, a *φάντασμα*; hence, we call the power phantasy. This word phantasy, *φαντασία*, was first employed to denote this faculty by Aristotle. It was then for a long time lost, until Bacon again took it up. Once more it disappeared, but was received by the German philosophers, and is now in general acknowledgment.

By means of this power we are enabled to bring up before us the scenes of our childhood; the old school-house, &c.: but we can go beyond this and reproduce to our minds the feelings of pain or of pleasure with which we trod those "ancient paths," and we can again go through our past lives with interest, as fresh almost as at the time of which we are now thinking. Whenever we recall a scene or object, it is by means of an image or phantasm; and the liveliness of the latter depends upon the same conditions as those noticed under "Retention." The poet, the novelist, and the historian, employ the aid of this faculty; and it adds a little to the argument in favor of the immortality of the soul.

Distinction between *fantasm* and *conception*. I think of a rose, and a single image appears before the mind; this is a phantasm: I then think of the class roses, as a whole; this is a conception. We can recall by phantasy (1) all we have by the senses, and (2) all we have by the consciousness. The image that the mind looks upon can be called so in a metaphorical way only; it is without any sort of material existence, and does not appear as distinct from imagination itself. It is hence, because the mind is evidently able to look upon thoughts and emotions without visible forms, that we derive an argument for the immortality of the soul.

3. Associative Power.—This is the power of following one train of thought in preference to desultory thinking. It seems as though our ideas, so quickly flashing through the mind, followed each other at random. But as, in the material world, the paths of wind and waves are ordered by the laws of nature, so law rules in these realms of invisible existence. That such a regular succession of ideas does really take place, may be proved in two ways:

1. If we follow a train of thought, we can invariably trace some connection between the single ideas.

Example. We think of the late Rebellion; a relative who was engaged in the struggle is recalled; some distinguished general occurs to us: we think of the close of the war, of the feelings about it then and now; of the different aspects under which the various foreign powers viewed it; the Alabama matter, with all that was connected with it, the Geneva Arbitration, &c., occur; we consider the difference between that case and the fate of the Virginius; we think of Cuba, its condition, and, perhaps, how we should like to visit it; then the obstacles which oppose such an undertaking occur to us, bringing with them our relations and our duties to our home, &c.

2. When a curious thought suddenly arises in the mind, it can often be discovered what gave rise to this phenomenon.

Example. Hobbes, of Malmesbury, tells us of a person who, while the conversation all around concerned the English Revolution, suddenly asked what was the value of a Roman *denarius*. Every body was puzzled how the person happened to hit on such an impertinent subject, when it occurred to Hobbes that, speaking of the English Revolution, the fate of Charles I. must have come to his mind, bringing with it a series of similar cases of treason, and especially that of Judas Iscariot. This suggested the bribe, thirty *denarii*, which had been given to the traitor, and this led the person to ask the value of the coin.

There are two sets of laws by which certain trains of thought are conditioned, viz., the primary and the secondary.

- *A.* Primary.
    - *a.* Contiguity.
        - 1. Repetition (succession.)
        - 2. Co-existence (redintegration.)
    - *b.* Correlation.
- *B.* Secondary.
    - *a.* Native Tastes and Talents.
    - *b.* Energy,
        - 1. Of feeling.
        - 2. Of intellect.
        - 3. Of will.

A. Primary Laws of Association.—The primary laws are those by which all thoughts are regulated in their succession.

a. Contiguity; that is, things which have been associated in the mind tend to recall each other.

1. *Repetition or Succession;* that is, when ideas have been in the mind successively, when one comes up, the others are apt to follow. It is by this law that the child commits poetry, &c., to memory; namely, by repetition until the words fall in one after the other by the law of repetition. It is from this power, also, that we derive the faculty of learning the meaning of words. Hence, too, it is possible that certain ideas are often recalled by their very opposites; as, tyranny suggests liberty: that certain things associated with incidents in early life will ever afterwards cause us a feeling of horror: that the recollection of ghost stories makes people shrink from darkness, though they do not believe them. This tendency facilitates the formation of prejudices, which can be avoided only by connecting things with more pleasant ideas. And this it is which gives strength to habit.

Habit is of a double nature:

I. It gives a *tendency* to repeat acts that have been often performed. Certain mental states have succeeded each other and are wont to return by the law of association. This is the force which lies in drunkenness and every other habit; powers which, after a while, gain a resistless sway over the mind. The acts thus get control of the will, as the man who commits himself to the Niagara, above the Falls, is borne down with the waters. Still this is no excuse for the unhappy individual; the criminality lies in the levity with which he committed himself, seeing, as he must, the inevitable consequences. Like Coleridge, he goes from one step to another, thinking that he has still the power to return, until he tries and finds the difficulty; then he again goes forward.

II. The tendency gives *facility* in performing acts often done. At first, we need an effort; but, gradually, means are devised of overcoming the obstacles, and finally all things go smoothly and easily.

Still, habit has a good side. The law is good; though when we violate it, it becomes a means of severe punishment. By habit we are enabled to read fluently what was once so hard to spell out; and useful as acquired knowledge may be, habits of diligence are still more so. Youth is the time to form habits: and good habits are necessary to prevent the formation of bad ones; just as the farmer must occupy a field with good seed, if he would prevent the growth of weeds.

2. *Co-existence or Redintegration;* that is, things which have been before the mind together, tend to recall each other.

The question arises, how many objects may be before the mind at the same time? Hamilton thinks there may be six. J. S. Mill says there cannot be more than one. If the latter be true, however, there could be no comparison; for we cannot compare two things if they are not both before us, however quickly they may succeed each other. Dr. McCosh thinks there may be five, or, more frequently, four. Thus I meet two persons; when again seeing the one, the other occurs to me by law of co-existence.

By the law of repetition, thoughts follow each other in a long train; by the law of co-existence, they are gathered in a group. However, in order to any advantage from these laws, knowledge gained by observation is essential.

By virtue of the laws of contiguity, memory may be cultivated by associating in the mind one object with another; as the boy makes a knot in his handkerchief to enable him to recall his mother's command. But a judicious arrangement of time, by the same law, is the best aid to memory. The sense of the beautiful may be cultivated by attending to these laws.

b. Correlation ; that is, things which are related to each other suggest each other.

The law of correlation or resemblance is of several kinds; 1. Resemblance; 2. Contrast; 3. Cause and Effect; 4. Means and End.

The first of these is by far the most important, correlation *par excellence.* The law of resemblance is that like recalls like. Thus it is that, when I see a portrait, I think of the original. (*Note.*—If I have seen the two together, it is by the law of contiguity that I think of the absent one.) The same law lets us connect sunshine and prosperity, sin and pollution, light and truth, darkness and error, heat and passion, fickleness and fortune, the lily and purity, spring and childhood, the fading leaf and declining life. Poetry especially makes use of these comparisons and similes, and the most beautiful are derived from the ancients and orientalists. It is also this same fact, that poetry makes use of all these self suggesting phrases and descriptions, that makes poetry so easily remembered. The law of resemblance is also of the greatest importance to the scientist, the classification of the phenomena of nature being based solely upon the resemblances discovered between them.

Similar to the law of resemblance, similar in nature and in importance, is the law of cause and effect. It enters as an important factor in investigations in the departments of history and physics; indeed, it is the foundation upon which philosophical history, as well as natural philosophy, is based.

The law of correlation assists us in remembering discourses of a complex character, by means of analysis and discovering of the logical connection between the various parts. It is, therefore, more advantageous to educate a mind by the system of correlation than by a method of contiguity. For, while the latter lets the mind forever run in the same old channel, the former adds new interest and creates a variety of conceptions which add greatly to the usefulness of the mental training. Upon this difference between correlation and contiguity is based the distinction between memory by the one or by the other. Memory by contiguity is natural to undeveloped, childish capacities; while the memory of strong men is that of correlation. The one grows like the blade of grass, unvarying and single; the other, like the tree, spreading its limbs and branches in unceasing variations.

Examples. A remarkable instance of memory by contiguity is told of a person who, after hearing Voltaire read a poem of considerable length, which he had himself composed, repeated the whole verbatim, thus greatly amusing the audience and proportionately embarrassing the poet. Another instance is that of a boy who was asked by a minister to give the divisions of a compass-box. This he did backwards as well as forwards. He then asked the parson to say the Lord's Prayer backwards; an impossibility for the old gentleman. The reason for this is that the boy's memory was one of contiguity, while the parson's was one of correlation.

It has been attempted to reduce these two primary laws to a single one; but though probably this is possible, all endeavors have, as yet, failed. Aristotle, Hamilton, Mill, and Valentin have been unsuccessful. But this will be taken up at a later date and discussed more minutely.

B. Secondary Laws of Association.—The secondary laws are those which, when several ideas might come up according to primary laws, determine which do actually come up.

a. The law of native and hereditary tastes and talents; that is the mind will often follow one train of thought rather than another, because it naturally inclines that way. Some minds are naturally inclined to seek for resemblances, others for contrasts. Some admire a thing for its beauty, others will despise it because it is not useful. To one person a rugged mountain top will be suggestive of sublimity and grandeur; to another it will appear merely as a poor place to raise cattle. The discussion regarding Darwinism will necessarily lead to a more accurate investigation into the hereditary laws, upon which little attention has as yet been bestowed.

b. The law of mental energy; that is, the mind will most readily bring up those ideas upon which it has bestowed most mental energy. This is perhaps the most important of the laws of association. It shows why, when a thing is brought before the mind over and over again, it at last becomes perfectly familiar. It arises from the fact that every mind is endowed with a certain amount of power, according to the amount of which, when bestowed on a certain object, it is more apt to return to the consciousness of the power. This mental energy is of three kinds:

1. *Energy of feeling or emotion.* Those ideas, the conception of which is attended with most exertion of feeling, remain most distinctly before the mind. Thus the scenes of our youth, the places and moments where we experienced some remarkable and impressive event, are long remembered; but the trivial and the mean pass away without detention. Hence, we can judge what a man takes interest in, by listening to the recollections to which he most fondly clings; or, when traveling with him, by observing what is most apt to attract his attention.

2. *Energy of intellect.* Those things which come up most readily are those upon which we have bestowed most intellect of any kind. Children who easily acquire certain kinds of knowledge, most easily forget them. There is more harm than benefit to be derived from such things as "science made easy," or "science made popular," or "science by cards." What is rapidly acquired is rapidly lost, and thoughts are of no use but when made our own. From this standpoint, novels cannot be considered as more than a sort of pleasant idleness. A book should not be made to think for the reader, but should excite him to think; then its precepts will remain.

3. *Energy of will.* Those things will most readily recur upon which we have bestowed most energy of will, especially of attention. Attention is merely an act of the will. It is well provided that things pass from us, so as to prevent the remaining of all small trifles. Still, we dare not banish all things from our memory; and we are well provided with the means of preventing this, if we are willing to use the power of attention which our faculty of volition gives into our hands. Thus, when we

listen to a discourse, or read a book which we wish to remember in substance, we are able to do so by concentrating our attention by means of taking notes and reviewing. Habits are thus acquired which are advantageous under all circumstances and in all conditions.

It is proper here, also, to observe a false impression which often exists, namely, that we have no more control over the flight of our thoughts than over the path of the winds and the waves. This is through misapprehension. There are persons who have a complete control, not only over their own ideas, but also over those of others. We certainly cannot command absent thoughts to appear, for as soon as we can command a thought to appear, it is present. But we can order it up in the due course of associations, by retaining a present thought. For example, you have forgotten the name of the capital of China; retain the idea of China, and, by a number of associations, Pekin will come up in due time.

Association can be cultivated as well as any other power of the human mind. Painters visit places remarkable for their scenery; poets go to the theaters of the scenes from which they draw their inspiration; historians travel to the spots where the subject of their studies dwelt, and picture to themselves their hero in his immediate surroundings as they are presented to their eyes. It is of the highest importance for the public speaker and debater to cultivate this faculty.

GENERAL REMARKS CONCLUDING THE ASSOCIATION OF IDEAS.

Plato was the first philosopher whose attention was attracted by the remarkable order and harmony observable in the manner in which the ideas passed through the mind of man. He accounted for this phenomenon by the doctrine of the pre-existence of the soul. Aristotle, his great disciple, not satisfied with this explanation, evolved the first philosophical theory. He attributed all that we place under the head of association to the operation of three laws: resemblance, contiguity and contrast. Henceforth, philosophers constantly referred to this hypothesis;

and Augustine, incidentally taking notice of it, expresses his opinion, the first to this effect, that the three laws might be reduced to one. In the Middle Ages, the association of ideas was treated of as a black art, and Locke yet speaks of it as a "curious phenomenon." In the last century there arose two classes of philosophers, the Scottish school, and the English philosophers led by Hartley, who connected it with a mechanical theory, the vibration of nerves. In this century, the attempt was made first by Dr. Thomas Brown, of Edinburgh, and afterwards by Jas. Mill, Hamilton and J. S. Mill. Jas. Mill says both may be explained, because like things have often been in the mind before, but this explanation, it will be seen, is utterly insufficient. Hamilton reduces both laws to what he calls redintegration. Taking the law of contiguity, co-existence, "the same suggests the same," he reduces the law of correlation to it by saying that "things, inasmuch as they are alike, are the same," thus making the portrait, which I have never seen, identical with the person of my friend. Still, this explanation is not totally satisfactory, and the matter still stands *sub judice.*

There may be, however, and, indeed, there probably is, one general law including the two, but it certainly has not yet been enunciated. The following may serve as a suggestion of a method by which a conclusion may be arrived at. Walking through a forest, I am struck with a particular tree, reminding me of others, and of one at the old school-house. Now, here there is more than mere resemblance. The mere colored surface before me gives the occasion for a process in the mind. I see a tree; it brings up, as contiguous, other trees, regarding which we have gone through the same process. Thus, there is involved a process of generalization which may be brought under the head of co-existence.

4. Recognitive Power.—This the power by which we recognize an object as having been before us in time past. Three elements are here involved, viz.:

a. We *recognize* an object or event.
b. We recognize an object as having been *before us.*
c. We recognize it as having been before us in *time past.*

a. We recognize an object. There may be here more than a mere mental image or idea; there may be a material object which is the subject of these powers; an object, however, not now seen for the first time, but again seen and cognized, re-cognized. Now though this object of recognition may be material, it may just as well be a mental state, an occurrence occupying a long space of time, and accompanied with many details.

b. We recognize an object as having been before us. In every recollection of objects and events, we have simultaneously a recollection of ourselves as having had those things under our notice and consciousness; that is, we recollect things as having been known by ourselves, previous to this recollection. In this operation of the mind we find involved a new element, which has not yet fallen under our notice, viz.,

The *faith* element; that is, faith is the conviction of "the existence of an object not now before us or under immediate inspection. A distinction has already been drawn between presentative and representative knowledge. In the former, the faith element does not enter as a factor; it would be totally inappropriate to say that I have a "belief" in touching this table, in experiencing this pain; but we may have faith as to some similar experience in the *past.* On the other hand, if you take memory, you find that the object is no longer present; it is re-presented by an image in your mind, or some other object suitable to perform the function. Still the mind may have as absolute conviction of the real existence of the one as of the other; and it is this that we call belief. "So far as I am convinced of the existence of an absent object, my state of mind is belief."

The faith element is a faculty of the utmost importance, ranking next to cognition. It rises higher than reasoning, which ultimately rests upon intuitive beliefs, and it is more comprehensive than mere intuitive knowledge, though it is based upon the cognitions of our intuitive faculties. It gives authority to the testimony of memory; and, joined as it always is, with an apprehension of some sort, becomes our guide to future hopes and happiness, and lends encouragement to the laborers in the fields of science and discovery.

c. The recognitions take place not irrespectively of time; we remember things as having been before us in time past. Consciousness testifies that there is always an intuitive belief to that effect; and if the idea of time is not given by intuition, it is impossible to arrive at it in any other way. No kind of ratiocination can furnish a conclusion, the premises of which are not ultimately based on a real and incontestable premise. Recognition, therefore, gives us a second element, viz.,

The Idea of Time. Dr. Thos. Brown's theory is that the idea of time is "a conception accompanied with a feeling of a relation of priority." Now the first part, that it is a conception, is readily acknowledged; but how can we discover "a relation of priority," unless we have the intuitive means of discovering that the event has happened in time past? Locke maintains that we arrive at the idea of time by reflecting "on the succession of our ideas." But the very fact of our being able to reflect, to meditate upon such succession, nay, even to discover it, is conditioned by our previously having an intuitive knowledge of time in the concrete. Besides, it is evident that a succession can give us merely the measure of time, not the idea. Locke, however, gives the true way of arriving at the abstract notion of time, after it has been given in the concrete. He thinks we derive it by reflection; by meditating upon it and separating the absolute idea of time from the events happening in time, we arrive at the idea of time in the abstract. (We obtain the knowledge of all actual existence from sensation and reflection.) Locke's erroneous idea, that all our knowledge is derived from sensation and reflection, was met by Leibnitz and, later, by Kant. Leibnitz looked upon space and 'time as mere relations between objects given by the mind:' "*je tenois l'espace pour quelque purement rélatif, comme le temps; pour un ordre de co-existence, comme le temps est un ordre de succession.*" This doctrine was but preparatory to that of Kant, who held that time was a "relation imposed upon objects by the mind." But, at the same time, it must be acknowledged that we have no more direct knowledge set of curious phenomena, illustrating the influence of mind on body and *vice versa*.

In all thinking, in every operation of the mind, there must be, according to Carpenter, some cellular disposition; especially, and perhaps always, in the cells in the periphery of the brain. This process, which is totally removed from our consciousness, Carpenter calls Unconscious Cerebration; a phrase which is admirable as indicating a fact, but worthless if intended to explain something. Memory depends, to a certain degree, upon this cerebration; this is not a concession to the materialist, but this cerebration is the result of mental action.

Note.—Review { Dr. Abercrombie's "Mental Powers."
Dr. Beattie's "Memory and Imagination."

From these singular facts it appears to be evident that the reproductive powers, in order to act in the right manner, require the concurrence of the brain. The act of recalling, &c., is undoubtedly a mental one; but it exerts its influence even upon the material substance of the brain. The cause, however, and the ultimate nature of this necessary co-operation are wrapped in mystery, and we can only infer its existence from certain undeniable facts. A man who had not lost the use of his eyes, but had a diseased brain, was unable to recall any scenes. A preacher, by paralysis, lost all recollections of exactly four years. Some persons, whose brains were in an unhealthy condition, remembered objects quite well, but forgot their names. Dr. Gregory mentions a lady thus affected; he also mentions cases where persons lost the recollection of certain things, distinctly remembering others. One of the most remarkable cases is that of a young man, who, having been for many years unable to speak the Welsh and French languages, was seized by a sickness which affected his brain; a circumstance which at once gave him back the power of speaking the long-forgotten tongues. Upon his recovery, however, he forgot them again. In this case it appears that the cerebration left something behind, which, when affected by the illness, called back the recollection of those languages. A clergyman with a diseased brain, spoke nothing but Hebrew, that being the last language he learned. A young girl, who repeated nothing but Hebrew, had lived a short time with a learned Hebrew Rabbi. (Carpenter's "Mental Physiology," pg. 430. Baron St. Leonard's wards.) M. Brocat attributes this "aphasia" to an unhealthy state of the left lobe of the brain, which he closely connects with the power of language.

2. Recalling Power, Imagining Power, Phantasy.—This is the power which enables us to call up, by means of a phantasm, that which has been before the mind in time past.

In sense-perception and self-consciousness, the objects to which our attention is called are present before us; in the recalling power there is no actual, material object to look upon. What appears before the mind is an image, a *φάντασμα*; hence, we call the power phantasy. This word phantasy, *φαντασία*, was first employed to denote this faculty by Aristotle. It was then for a long time lost, until Bacon again took it up. Once more it disappeared, but was received by the German philosophers, and is now in general acknowledgment.

By means of this power we are enabled to bring up before us the scenes of our childhood; the old school-house, &c.: but we can go beyond this and reproduce to our minds the feelings of pain or of pleasure with which we trod those "ancient paths," and we can again go through our past lives with interest, as fresh almost as at the time of which we are now thinking. Whenever we recall a scene or object, it is by means of an image or phantasm; and the liveliness of the latter depends upon the same conditions as those noticed under "Retention." The poet, the novelist, and the historian, employ the aid of this faculty; and it adds a little to the argument in favor of the immortality of the soul.

Distinction between *fantasm* and *conception*. I think of a rose, and a single image appears before the mind; this is a phantasm: I then think of the class roses, as a whole; this is a conception. We can recall by phantasy (1) all we have by the senses, and (2) all we have by the consciousness. The image that the mind looks upon can be called so in a metaphorical way only; it is without any sort of material existence, and does not appear as distinct from imagination itself. It is hence, because the mind is evidently able to look upon thoughts and emotions without visible forms, that we derive an argument for the immortality of the soul.

3. Associative Power.—This is the power of following one train of thought in preference to desultory thinking. It seems as though our ideas, so quickly flashing through the mind, followed each other at random. But as, in the material world, the paths of wind and waves are ordered by the laws of nature, so law rules in these realms of invisible existence. That such a regular succession of ideas does really take place, may be proved in two ways:

1. If we follow a train of thought, we can invariably trace some connection between the single ideas.

Example. We think of the late Rebellion; a relative who was engaged in the struggle is recalled; some distinguished general occurs to us: we think of the close of the war, of the feelings about it then and now; of the different aspects under which the various foreign powers viewed it; the Alabama matter, with all that was connected with it, the Geneva Arbitration, &c., occur; we consider the difference between that case and the fate of the Virginius; we think of Cuba, its condition, and, perhaps, how we should like to visit it; then the obstacles which oppose such an undertaking occur to us, bringing with them our relations and our duties to our home, &c.

2. When a curious thought suddenly arises in the mind, it can often be discovered what gave rise to this phenomenon.

Example. Hobbes, of Malmesbury, tells us of a person who, while the conversation all around concerned the English Revolution, suddenly asked what was the value of a Roman *denarius*. Every body was puzzled how the person happened to hit on such an impertinent subject, when it occurred to Hobbes that, speaking of the English Revolution, the fate of Charles I. must have come to his mind, bringing with it a series of similar cases of treason, and especially that of Judas Iscariot. This suggested the bribe, thirty *denarii*, which had been given to the traitor, and this led the person to ask the value of the coin.

V. Means of cultivating the memory. Since association is one of the elements of memory, attendance to its laws must necessarily prove an aid to the memory itself. The laws of association, to which such importance should be attributed, are—

a. The law of contiguity. Associate that which you wish to remember with something which will surely come under your notice, and this will bring up what you wished to be reminded of. It is upon this principle that a mother ties a string around her boy's finger to remind him of his errand. The string and the command have been associated in the mind, and, when the one comes up, the other follows. Thus the old Hebrews wore a sign upon the frontlet to remind them of their duties.

b. The law of correlation. It is well nigh impossible to remember loose, disconnected facts, and their importance is certainly very slight. An appreciation of this fact led the ancient philosophers to lay down their maxims in the form of poetry. It is always better to have one's knowledge well systematized and at one's command by the laws of correlation. Hence, the value of a scientific education, which lays great stress on the development of the analytic powers of the mind.

c. The law of energy.

1. Energy of feeling. Scenes and events which have strongly excited our feelings, will long be remembered; while uninteresting things are forgotten.

2. Energy of intellect. Those studies which have cost us most intellectual labor, are the most fruitful and the longest remembered.

3. Energy of will, *i. e.*, attention. This is by far the most important. If you wish to remember a book or discourse, give it your whole and undivided attention; that will be the most effectual way of accomplishing your purpose.

5. Compositive Power.—This is the power of puttin things, which have been before the mind, into new forms an dispositions. Four elements are here involved, viz.:

a. A diminishing power; that is, if I have seen a man, I ma picture to myself a Liliputian.

b. An enlarging power; that is, having seen a man, I c between ourselves and that particular tree, that it is at a considerable distance. But if we look at an object, between which and ourselves we see no immediate object, we immediately say it is near. In this case, our experience, for on experience we must base all inferences from such appearances, is apt to fail us. Looking over a plain, over a lake, with nothing but air between ourselves and the objects looked at, we often are deceived as to the distance of those objects; they seem nearer than they really are. The opposite kind of deception takes place when we look over a plain covered with snow. In such cases, we must not accuse our senses of deceitfulness; it is our reasoning, accustomed as we are to different circumstances, which leads us to erroneous conclusions.

7. Comparison.

In judging of the size of an object, we are aided by comparison. Distance being size in horizontal position, we may make use of the same means of facilitating our inferences.

Dr. Abercrombie said that persons standing in the door of St. Paul's Cathedral seemed like very small children, whereas they were full-grown people. The mistake arose from the fact that the doors were much larger than ordinary doors. Artists, to distinguish size in their pictures, make use of this principle.

Note.—As to solidity or distance in three dimensions, we know by the eye, according to binocular vision, that there is a difference between a surface and a solid; but, as was shown in the Franz case, what that difference is we learn by experience. Such acquired perceptions add greatly to our knowledge, and are necessary to the daily duties of life. The Idealist and the Skeptic plead the deceitfulness of our senses; they say they deceive us in some things, and are not, therefore, to be trusted in all cases. As an example, it is often brought out that a countryman, on a vessel moving from the shore, is under the impression that the shore is moving away; or that, when to us realities, memory, on the other hand, cannot "enliven by the varied pictures which are presented by the sister power."

The power of imagination is always constructive, never creative: a man born blind cannot, by any native power of his own mind, apprehend colors; nor a deaf man, sound. But having once seen color, obtained a knowledge of sound, he can find unnumbered ways of disposing them.

Imagination, like memory, has the powers of retention, phantasy, association of ideas, composition. The last is the essential element. Looking at these under the two heads of the imaging power and the constructive power, we have—

1. *The Imaging Power.*—It is this necessary element of the faculty which gives it the name *φαντασία*, employed by the ancient Greeks and by Bacon. An illustration will best explain what is here meant. A mother looks out of the window to take one other look of her son who is setting out to a distant land, where he will probably long remain before returning. She follows him until he turns the corner and is lost to her sight. But still she follows him, picturing him as he toils in the far-off country, as he rises from one step of aggrandizement to another, as he returns, at last, by that same road and around that same corner, to this same house. She will also picture to herself the scene of his return to her, and herself as receiving him.

2. *The Constructive Power.*—The mother, as has been seen, not only recalls and pictures to herself the past, but she puts the old forms into new shapes and combinations; the highest and the essential power of imagination, the characteristic of genius, a constituent of every kind of invention.

The operations of imagination embrace not only the material, but also the mental and spiritual worlds. The poet, the dramatist, and the novelist, take advantage of this fact in disposing into new shapes and collocations, not only men, but all the elements of human nature. Indeed, poetry and fiction generally should be confined to the representation of the motives, sentiments, and passions of mankind. True poetry must come welling up from a true heart. The ancient poets overlooked this; and, therefore, the more it is understood as it ought to be, the more the ancient apparatus of poetry is disappearing. It is becoming ridiculous to invoke the lyre, an instrument which few poets have ever beheld, or to call upon Apollo and the Muses, when to speak in earnest of such deities is absurd.

II. *Its Use.*—Imagination has a noble purpose to serve. It widens the horizon of the mental vision; it elevates the sentiment; it affords variety and amusement; it is, as D'Alembert remarks, no less essential to the scientist than to the poet; it suggests hypotheses to explorers in physical science wherewith to explain phenomena; it supplies devices to the general in the field, to the adventurer by sea or land, to the farmer tilling the soil, to the merchant seeking new openings in trade. It is the source and springing fountain of all that is most gratifying in art and literature; and it has the power of awakening sentiment deep and fervent. It is not necessary that the object of these emotions should have a real existence; the novel reader rejoices over the success of the hero of the tale, and weeps over the misfortune of the heroine. Dugald Stewart accounts for this by maintaining that there is a momentary belief in the reality of these objects. But this is unnecessary; the mere mental image is enough to create the emotions, although a disbelief caused by the unnaturalness of the description would destroy the effect. It follows that, according to the cherished imagination, will be the prevailing sentiment. When devoted to its proper use, the fancy helps to cheer, to elevate, to ennoble the soul; while gloomy, vicious, or unmanly thoughts will ever depress the man below his intended level.

The new idea which imagination gives us is that of the *infinite.* The philosophers of the Continent, especially Descartes, Leibnitz, and Kant, give this idea a high place in their systems, while the British thinkers attribute it to an impotency of the human mind. But "*a priori*" methods cannot attain to any satisfactory result on this subject, and we must proceed to investigate it inductively. In this manner, we arrive at the following negative and positive propositions.

A. Negative Propositions.

a. The mind can form no adequate apprehension of the infinite in the sense of image or phantasm. To image a thing in the mind is to give it an extent and a boundary; and when we would imagine unlimited space, we swell out an immense sphere, an indefinite but not an infinite volume.

b. The mind can form no adequate logical notion of the infinite. Apprehension is an act of the understanding as well as of mere phantasy; and the mind, as it can form no image, can form no conception of infinity; it cannot by abstraction, for that diminishes; it cannot by generalization, for that merely groups together various objects and if there is no infinity in the individual, then none in the mass; nor can we reach infinity by multiplication, addition, or composition; these will give the enlarged but not the unlimited. "A distance of a quintillion of quintillions of years or ages has as distinct a termination as an ell or an inch."

So much may be allowed to those who conceive of the idea of the infinite as a mere negation; but, on the other hand, the natural disposition of the human mind constrains us to believe that it also has a positive reality: and if this is so, we must be able to discover what is its nature.

B. Positive Positions.

a. The mind apprehends and believes that there is and must be something beyond its widest image and concept. The farthest stretch of imagination will never go beyond an expansion with a boundary. And this conviction has the nature and bears the test of intuition.

b. We apprehend and are constrained to believe in regard to the objects to which we attribute infinity, that they are incapable of increase. Here the imaging power fails us. We are unable to reach the infinite; but we have an intuitive conviction that, when we have reached it, it will be perfect, *i. e.*, nothing more can be added to it, whether it be in things material or spiritual, natural or moral.

III. *Its Abuse.*—While imagination is fitted to increase the enjoyment more than any other faculty, provided it is confined to its proper sphere of action, yet there is none which is so liable to run into error and excess, and to land the possessor in misfortune. Genius is certainly a high gift, but it offers endless opportunities for misdirection. Aware of this, Sir Walter Scott was thankful that his son did not possess the dangerous gift. Still, if men possess that high degree of genius and talents, let them use them. But let the dangers connected with the habit of castle-building be known ; a danger which Sir Jas. Mackintosh alludes to when he tells about his early fancies that he was a Roman emperor, which ridiculous habit followed him through life. If such habits are indulged, they tend to weaken the native strength of the mind and create idleness and languor of thought. This is the danger arising from excessive novel reading. Besides the harmful influence exerted by the exhibition of evil tendencies, it has been shown by Butler and Dugald Stewart that even the most proper novels can exert an evil influence on the mind by exciting the feelings, without supplying an object upon which they may be left to operate, thus naturally blunting and hardening the tender sympathies of the heart by accustoming them to scenes of misery and unhappiness, even exceeding the reality which, now and then, appeals to these affections.

IV. *Its Cultivation.*—"The imagination may best be cultivated by laying up a store of noble images, ready to present themselves when occasion requires, to enliven and instruct the mind." Man's beautiful works of art and industry and the still more wondrous works of nature especially as exhibited in the organic kingdoms, are well fitted to raise the mind above the low and commonplace, and store it with images ever after lighting it with their resplendent beauty. The highest part of man's nature, however, is not the sentient, but the moral and spiritual ; and those who would give the highest training to the mind must introduce to it examples of excellence, tales of heroism, whether taken from inspired or uninspired biographies.

6. Symbolic Power.—This is the power we have of thinking by means of symbols. In reflecting upon objects not within the immediate reach of our senses, we must have some means of representing them to the contemplating mind. Now, when we think of an individual object, as a rose or a lily, we bring it under our direct notice by means of a phantasm; but when we are called upon to reflect on a whole class of objects, the difficulty becomes insuperable; because it is both unnatural and untruthful to endeavor to combine a class of objects into one individual, either by making a union of their distinguishing qualities, or by neglecting these and considering only those common to them all. However, if we admit this, one of Locke's theories, in regard to classes, we must surely agree with Berkeley in saying that it is absurd to represent abstractions by phantasm. In the lower abstractions, this image may exist dimly; but the higher we rise, the dimmer it becomes, until, in the more recondite ratiocinations, it disappears altogether. Think of an image of chemical affinity!

The most important power of the symbolic faculty is that of *language*. It is superior to the imaging power, inasmuch as it is able to represent not merely concrete individuals, but also general notions; thus observing and facilitating the distinction of Aristotle between *φὰντασμα*, image, and *νόημα*, concept. It is superior to all other sorts of representation by signs, as danger by a red flag, because it is more convenient and accommodating.

Two things are necessarily implied in the use of language as a means of representation, viz.:

1. A mental power and tendency to use symbols in order to think of objects or classes of objects.

2. An organic capacity for articulate speech and a complex apparatus serving that purpose. The former is often found where the latter is not exercised, as in the dumb man; and the latter is often found where the former does not exist, as in animals of some kinds, *e. g.*, the parrot, having the capacity for articulate speech, but no power of abstract thought.

According to M. Brocat, the organ which seems most intimately connected with the symbolic power, is the left lobe of the cerebrum.

Note.—The great advantage of language over phantasm is its artificialness; never pretending to an adequate representation of the thing expressed, and thus avoiding all misleading influence.

CHAPTER V.

THE COMPARATIVE POWERS.

We now turn to the third group of Cognitive Powers.

III. *Comparative Powers.*—By these we discover the relations between objects, and form judgments.

(*a.*) Simple and unconnected ideas are perceived through the senses. The first group of powers, the *presentative*, gives us knowledge of material objects as external, colored, etc., and of self as perceiving, knowing, etc.; *i. e.*, of the material world without and the spiritual world within; the second group, the *representative*, reproduces these objects, either as they have been, or in new forms and dispositions.

But as yet we have met with no powers calculated to bring the various objects already known into any sort of juxtaposition, or to discover any existing relations between them. Our knowledge, then, is still meagre and insufficient; our ideas, indistinct, like the floating clouds. This third group, the *comparative* powers, supplies the evident deficiency of our primary knowledge by the aid of a process of sound abstraction and ratiocination; they proceed on what is furnished by the *simple cognitive* powers, and trace the relations existing between such objects; and it may here be said that the difference between the unhewn rock and the polished statue is not greater than that between our intuitive and discursive knowledge.

(*b.*) The mind does not begin with comparison. Many of the metaphysicians of the present day assert that relations are involved in the operations of the senses. But the real and true statement is that we begin with *things* and then discover the relations existing between them.

(*c.*) These relations are as real as the objects between which they are found to exist. It is because the relations exist that we can discover them, not *vice versa* :—these relations are not creations of the brain.

For example, what constitutes the cause, effect, and the power of the cause to produce the effect, have all an actual existence.

The relations intuitively observed by the mind are, according to the best extant, though by no means perfect, arrangement, the following :

I. Identity and Difference.
II. Whole and Parts.
III. Resemblance.
IV. Space.
V. Time.
VI. Quantity.
VII. Active Property.
VIII. Cause and Effect.

Note.—1. Each proceeds on the knowledge of objects.
2. The mind can discover more than relations of resemblance and difference, which is against the theories of the positivists and sensationalists.

We may illustrate the existence of the various relations in a concrete substance, thus: on seeing an apple-tree just in full bloom, we discover or think of eight facts which in their order respectively illustrate the above-mentioned relations, viz. :

1. This is the same tree which we saw yesterday.
2. We think now of the tree, now of the separate blossoms, and acknowledge that there are blossoms on the tree.
3. We notice that this tree is similar to other trees.
4. We observe the shape and size of tree and blossoms.
5. We speculate how long the blossoms will last.
6. We try to count the blossoms.
7. We find that the blossoms emit an agreeable odor.
8. We discover that some have been blown away by the wind.

I. *Identity and Difference.*—It is the same power which discovers identity and difference. This relation carries us back to the simple cognitive powers, for by both the external and internal sense we know every object as possessing being ; that is, an existence separate and independent from the contemplating mind. This principle being continued in the objects, constitutes their identity ; and intuitively we look upon the objects as retaining that being as long as they exist. The memory may, however, sometimes fail in recognizing certain objects.

(*a.*) *Personal Identity.*—We have an immediate and direct means of knowing our personal identity.

(1.) In every act of self-consciousness we know self as having being. (2.) In every act of memory we have a recognition of past-self. Comparing the two, we declare them to be the same; for although our mental states may be different on the two occasions, we have still all that is essential to self. We have the intuitive conviction of personal identity, because it has the three essential marks of intuition, viz.: (1.) self-evidence; (2.) necessity; (3.) universality.

(*b.*) We have no intuitive conviction of the identity of any *external* objects. Indeed since scientists tell us that our bodily frame may be entirely changed in seven years, we have no power to discover the identity of our own body. Much less is this the case with extra-organic objects, since resemblance may frequently be so great as to deceive us. In the recognition of our friends, there is a "moral certainty," or high probability, which leads us to do so. In no case, however, can we prove identity; it is an idea too simple to be resolved, too necessary to be doubted.

The relation of identity may take three different forms:

1. The law of *Identity proper*, "which requires us to recognize the same to be the same, presented, it may be, at different times, or in different circumstances, or in different forms: (*A is A*)." This principle guides us in all affirmative judgments in logic, also in both immediate and mediate inference from them.

2. The law of *Contradiction*, "according to which it is impossible for the same thing to be and not to be at the same time: (A is not *Not*-A.") This principle applies both to things and their qualities: *e. g.*, free will, extension; it regulates all propositions which draw negatives by immediate inference; is used largely in negative reasoning of all kinds.

3. The law of *Excluded Middle* or *Third*, "which requires that when two propositions are in the relation of contradiction, one or the other must be true, and yet both cannot be true: (*A is either B or not B*)."

In different terms: Affirmation and Negation of the same thing, in the same respect, have no conceivable meaning; whilst anything actually may, and virtually must, be either affirmed or denied of anything. In other words: every predicate is true or false of everything; or contradictories are thought as impossible, but, at the same time, one or other as necessary."

The law of identity gives rise to the famous distinction between analytic and synthetic judgments. It was first brought out by Kant in 1781, and has since received universal acknowledgment. Analytic judgments are those in which the predicate is contained in the subject, and thus merely analyzes the ideas embodied in the subject. Synthetic judgments, or, according to Hamilton, ampliative judgments, are those in which the predicate affirms something more, or denies something more, than is embraced in the subject. Synthetic judgments are such as, gold is yellow, sin will be punished. These judgments may be *a posteriori* or *a priori*, while analytic judgments are *a priori*.

Note.—*A priori* judgments are those pronounced immediately by the mere looking at things and without previous experience. *A posteriori* judgments are those that rest upon knowledge gained by experience.

Synthetic judgments of the *a priori* kind are the mathematical axioms; such as, "two straight lines cannot inclose a space:" and metaphysical principles, such as that every effect must have been produced by an adequate cause.

II. *Whole and Parts.*—The mind begins with the concrete, and, this being furnished, is capable of considering a part of the concrete whole separate from the other parts; a process much aided by the fact that the concrete whole seldom appears in its entireness. The child sees a man with a hat to-day, and without it to-morrow, and is thus better enabled to form a notion of the hat by itself. Comparison enters as an element into all these abstracting operations, although in cases where absolute separation is possible, the parts may be regarded without comparison; as in separating the rider from the horse. The discovery of the relation of whole and parts is eminently an intellectual operation, involving a power of correlation. It is called *comprehension*, inasmuch as it contemplates the whole in relation to its parts; or *abstraction*, since it contemplates the part as part of the whole; or the faculty of *analysis* and *synthesis*, inasmuch as it resolves the whole into its parts, and shows that the parts make up the whole. Now, since our primary knowledge is of singular and concrete realities, we have the following positions, viz.:

1. *The abstract implies the concrete.* While we are able to distinguish between a whole and its parts, an object and its qualities, and between one quality and another, we are not to suppose that these can exist separately and independently; but every such abstraction implies a concrete which embraces it and others, and from which it has been separated in thought.

2. *When the concrete is real, the abstract is also real.* Abstraction, if it proceeds on a reality, and is properly conducted, ever leads to realities, and is thus a most important factor in the discovery of the truth. However, while this abstract has real existence, it does not necessarily have independent existence. Beauty is certainly reality, but it has no existence apart from a beautiful person or scene, of whom or of which it is an attribute.

The individual judgments which the mind pronounces, on looking at the whole and its parts, may, perhaps, be generalized into two principles: (1.) The parts make up the whole. (2.) The whole is equal to the sum of its parts. From the first, we may derive the rule, that the abstract part is involved in, and is less than, the concrete whole. From the second, is derived the maxim that the whole is greater than a part. Such maxims underlie many of our thoughts in all departments of investigation.

In Natural History, it urges us to seek for a classification of any subdivision into all its members; in Chemistry, to look out for all the constituent elements of the compound substances; in Psychology and Metaphysics, to analyze a concrete mental state into parts, and insists that in the synthesis the parts are equal to the whole. In Logic, it appears in the rule that the members make up the class, in subalternation and disjunctive division.

In most of such cases, the prominent elements are got from experience; in some of them, other intuitions act the more important part; but in all of them intuitions of whole and parts underlie the mental process.

III. *Resemblance.*—All our primary notions are of individuals. A child has a notion of a particular man, as his father, before he rises to the general notion of mankind. From the knowledge of previous or present objects, we have the means of declaring that they are alike or unlike. Generalization proceeds by discovering resemblances, and then putting these like things under some class. Hence we get concepts. Abstraction is necessary to generalization.

(*a.*) Generalization proceeds on common properties supposed to be in things.

(*b.*) The mind is always tending to discover resemblances, and is thus furnished with means of arranging natural objects in a natural way.

(*c.*) In *Identity*, we declare objects to be the same.

In *Resemblance*, we declare them to be possessed of like qualities.

In *Equality*, we declare that they resemble each other in point of quantity.

There are three laws in regard to this faculty, viz.:

1. The universals imply the singular. There would be no generals if there were no individuals.
2. When the singulars are real the universal is also real. The class *ruminant*, has an existence quite as much as the individual animals.
3. Whatever is predicated of a class may be predicated of all the members; and, *vice versa*, whatever is predicated of all the members of a class may be predicated of the class.

IV. *Space.*—We have a knowledge of objects as occupying space, and have thus a means of comparing them. In all cases we fix upon a unit of some sort. The faculty which discovers the relations of space is, like the others, dependent upon the powers which give us our primitive knowledge; that is, upon the simple cognitive powers as giving us the knowledge of space, or extension, in the concrete; and it is by separating this quality from the others that we arrive at the idea of space in the abstract. The faculty of discovering the relations of space gives us not only many axiomatic principles of mathematics, as "the shortest distance between any two points is a straight line," but also certain intuitive truths in regard to motion, as that it must be in space and through space; in regard to the necessary relations existing between objects and space, as, "body occupies space and a certain portion of space," and thus has a definite figure. This faculty reveals also certain metaphysical truths as to space, as, "space is continuous," "space has no limits." It is a faculty which is exercised by all minds; it is of the greatest use in practical life to discern forms and objects, as well as in science, so far as it relates to physical existence; but it is especially necessary to the geometer and the naturalist, whose classifications are founded upon morphological distinctions.

V. *Time.*—The relation of time is discovered in thoughts, as well as in external events; and the faculty which discovers the relation is one whose usefulness stretches beyond the sphere of visible existence. In memory we have time in the concrete; and by this faculty of discovering the relations of time—a faculty which, although it is based upon memory and proceeds upon it, is nevertheless perfectly distinct from it—we find what connection, what relation, there is between the events in time and time in itself; a form of knowledge impossibly derived from memory alone, because memory is only of single objects, never of relations.

We judge of time much in the same way as of space; hours seem long when passed in anxiety, short when passed in pleasant excitement. Thus there is a chance of one's erring in his judgments in regard to time; and hence arises the necessity of having certain marks by which, as in memory, to refresh and strengthen the faculty and render it more accurate. It is for this reason that we reckon from days or events which have caused changes in our lives or in our country's existence. We find this method prevailing in all lands and ages: the Jews reckoned from the Passover; the Greeks, from the Olympian Games; the Romans, from the foundation of the City; the

Christians, from the birth of Christ. These are the historical landmarks about which to arrange events; and the more accurately the system is followed by each individual, the more distinct and ready will be his memory.

The knowledge of the faculty of discovering the relations of time is all-important in the study of philosophy, algebra, arithmetic, and history; and it is a power which it is one of the strongest desires of the human mind to use. Whenever an event is brought to our notice, we always endeavor to correlate it with respect to time. And here we find a beautiful correspondence between the external and internal worlds. Everywhere, throughout the great phenomena of nature, we find a prevailing periodicity. The lives of plants, of animals, of men, have their periods; the currents of the air, the rising and falling of the ocean, the light of day and the darkness of night, all have their time marked out; even the events of men, the lives of nations, the issues of political labors, have their periods, while in the diseases of man, in the variation of magnetic attraction, and in the movements of the constellations, the most perfect order, in regard to time, is everywhere observable.

VI. *Quantity.*—These relations are equivalent to the relations of proportion (Locke), or of proportion and degree (Brown), or of less or more (McCosh). This faculty proceeds to operate on the basis of knowledge formerly acquired and aided by other relations already discovered by the mind. Thus, having already the knowledge of the relations of time and space, we can discover that this event or this body occupies more time or space than another event or body. Hence, the faculty for discovering the relations of quantity is essential to mathematics as being the science of quantities. The power of observing the relations of quantity is necessary in order to the exercising the subordinate power of observing the relations of number.

Number.—Dr. Whewell refers our conceptions of number to the "sense of successiveness;" that is, to the faculty by which we discover the relations of time. He admits "that we seem to apprehend number without an act of memory, without, also, any reference to time; but he maintains that this seeming instantaneousness of perception is merely an excessive rapidity and quick succession of perceptions, acts so familiar to us as to have become unconscious. Children and rude savages must use an effort to reckon even their five fingers, and they do it by the help of memory. On the other hand, there are persons who can count with dozens as rapidly as others can with units; a proficiency which is but the result of a natural aptitude or habit. We may conclude, therefore, that when we appear to catch a small number, by a single glance of the eye, we do, in fact, count the units of it in a regular though very brief succession. Another proof of this theory is that, when counting very slowly, we are apt to forget, in the intervals, what was the last figure, and miscount. Now, the nature of the process of counting is the same whether slow or fast, as there is no definite speed at which the faculties are changed; and, therefore, memory, being required in some cases, will be required in all." This may all be admitted. There may be, in our perceptions of number, an act of memory and a perception of successiveness; but there is something more; there must be a general power of discovering the relations of quantity. To the faculty of discovering the relations of quantity, must be referred all operations by which we discover equality, difference, or proportions of any kind, in numbers.

VII. *Active Property.*—We cannot know objects, either mental or material, except as exercising properties. The mind is ever changing under the influence of the emotions or of the will, and always properties are exercised. It is of these properties, in connection with one or more of which we must always see the mind, that we make proper distinctions and classifications. As to matter, there is a diversity of opinions, some representing it as mere force or action, others denying it all active properties. Of these opinions, the one is as false as the other. By its properties of attraction, chemical affinity, etc., matter manifests itself plainly as being active; but it also shows itself to have passive qualities, inasmuch as no particle of matter can exercise independent power. Its action is always upon another form of matter, and never self-acting.

VIII. *Cause and Effect.*—The principle of cause and effect is implied in all our knowledge of the past and also of the future. It is not the same with uniformity of nature; for there may be some exceptions to the uniformity of nature: *e. g.*, in the rising of the sun and changing of the seasons; but there can be none to the law of cause and effect, and yet there cannot be uniformity in nature without the principle of causation.

Causation implies the idea of power obtained originally from the will and muscular sense—the intuitive knowledge of *substance exercising power*. We never know of a causal influence being exercised, except by an object having being and substantial existence. We decide and must decide that every effect proceeds from one or more substances having potency. If a tree is felled to the ground, if the salt we saw dry a minute ago is now melted, we not only look for a cause, but for a cause in something that had being and property, say, in the wind blowing on the tree or in water mingling with the salt. If this world be an effect, we look for its cause in a Being possessed of power.

This doctrine of cause and effect may be considered *objectively*, *i. e.*, what it is in itself; or *subjectively*, *i. e.*, what faculty perceives it.

A. *Objective.*

1. Causation implies substance (body and mind) with properties, and we are therefore always carried back to a substance.

2. All causation is dual or plural, implying two or more agents acting on one another. We say that a certain plant was killed by frost; but when we spread out the full phenomenon, we find that the true cause was not the mere frost or cold, but the state of the plant and the state of the atmosphere combined, for it is only when these unite, that the plant is killed; with a stronger plant, or with less cold, there might have been no such result.

But there is also a duality or plurality in the *effect*, which consists of a change both in the plant and atmosphere. A picture falls from a wall and breaks a table below; the cause, the productive, efficient cause, consists both in the picture and table; but the effect consists also of the picture and the table in a new instantaneousness of perception is merely an excessive rapidity and quick succession of perceptions, acts so familiar to us as to have become unconscious. Children and rude savages must use an effort to reckon even their five fingers, and they do it by the help of memory. On the other hand, there are persons who can count with dozens as rapidly as others can with units; a proficiency which is but the result of a natural aptitude or habit. We may conclude, therefore, that when we appear to catch a small number, by a single glance of the eye, we do, in fact, count the units of it in a regular though very brief succession. Another proof of this theory is that, when counting very slowly, we are apt to forget, in the intervals, what was the last figure, and miscount. Now, the nature of the process of counting is the same whether slow or fast, as there is no definite speed at which the faculties are changed; and, therefore, memory, being required in some cases, will be required in all." This may all be admitted. There may be, in our perceptions of number, an act of memory and a perception of successiveness; but there is something more; there must be a general power of discovering the relations of quantity. To the faculty of discovering the relations of quantity, must be referred all operations by which we discover equality, difference, or proportions of any kind, in numbers.

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VIII. *Cause and Effect.*—The principle of cause and effect is

Hence, we conclude that the causal judgment is intuitive; it is able to bear all the tests thereof:

1. It is *self-evident;* It carries its evidence in itself. It is undeniable that the instinctive seeking for a cause is as strong in a child as in a man, as invariable in the rudest savage as in the most civilized being.

2. It is a *necessary* and fundamental belief. We are constrained to believe it.

3. It is *universal,* being a belief among men brought up in such entirely different circumstances and influences.

We are not compelled to seek out an infinite series of causes. The proper statement of the causal judgment, is not that every*thing* must have a cause (which would make the Creator an effect,) but that everything which *begins to be* must have a cause.

(For full discussion of this matter, see McCosh's Intuitions, pp. 228–244.)

Psychological Nature of the Discursive or Logical Faculties.

In the discursive operations we proceed from something given or allowed to something derived therefrom. The steps by which all discursive operations of the mind are carried on are three, viz.:

I. Simple Apprehension.
II. Judgment.
III. Reasoning.

I. Simple Apprehension. By this, we apprehend objects or obtain notions. These notions are of three kinds, viz.:

a. Singular Notions. They are obtained by sense-perception and self-consciousness, and are called up by these immediately, when the objects are present, and by memory when the objects are absent. No exercise of the comparative powers is involved.

b. Abstract Notions are from comprehension. They are notions of attributes.

c. General Notions are formed by the faculties of discovering resemblances, whereby objects having common marks or characteristics are grouped together in one class.

II. Logical Judgment. We compare two conceptions, or an intuition and a conception, with a view of declaring their agreement, disagreement or identity. There are two kinds of judgment, (*a*) in comprehension, (*b*) in extension; *e. g.*, "a dog barks," as a judgment in comprehension, means that the dog has the attribute of barking; as a judgment in extension, means that he belongs to the class of barking animals.

III. Reasoning. Philosophical logicians say that reasoning is the same mental operation as judgment, the difference being that we have three terms instead of two; we compare two terms by means of a third. Reasoning in comprehension may be exchanged for reasoning in extension and *vice versa.*

GENERAL REMARKS UPON THE COMPARATIVE FACULTIES.

1. These faculties are universally characteristic of humanity, being found in a rudimentary degree in children and madmen. Indeed, madmen can often reason excellently from premises; but the premise is usually a dominant idea borne in upon them by lunacy.

2. They seek for their appropriate objects of operation.

3. They are admirably suited to the state in which we are placed. We can conceive of a world in which the relations in no way correspond to the faculties. But, as it is, there is a beautiful resemblance between the internal and external worlds; between the faculties and the phenomena revealed by the senses. Hence men are at home in the world.

4. There is a beautiful correspondence between the mind and the object thought about. The Eleatics and Hegelians say that this arises from the unity of thought and being. This, however, is not true, nor as Spencer says, is it the result of a gradual accustoming process. There must have been an original adaptation. It was so created; things are so arranged that the mind contemplating is suited to the thing contemplated. The relation is only one of correspondence; the eye suits the light which falls on it, and the light is so constituted as to affect the eye so as to produce a rational result; but the rays of light have not made the eye; nor the mind, the laws of nature.

5. These faculties differ widely in the case of different individuals. This may arise from the intensity of the primitive cognition or native taste and talent (talent is taste in exercise.)

6. All these eight relations, with one exception, are to be found both in mental and material objects. The exception is the relation of space. This is an argument against materialism. There are thus points of affinity between mind and body.

• SUMMARY.

First, we have the *simple cognitions;* then, *ideas* reproducing in old or in new forms; thirdly, *relations* are discovered among cognitions or ideas. We apprehend extension and energy by *sense perception*; mind and its properties by *self-consciousness;* the idea of time and the infinite by *reproduction;* the relations of events, quantity and causation, etc., by *comparison.*

III.—THE MOTIVE POWERS.

Cognitive powers give us knowledge and ideas. Motive powers raise up desires and lead to action.

The motive powers are

I. Moral Power or Conscience.
II. Emotional.
III. Will.

CHAPTER VI.

I.—THE MORAL POWER.

(*Συνείδησις.*)

Of this power we think, when we speak of conscience. The first question which we must have settled in our minds is, whether there is such a thing as a moral power; that is, a separate faculty of the human mind devoted exclusively to the cognition of moral good and evil. There can be no doubt that we have this idea of good and evil. We see a son maltreating his father, and we at once rise in indignation against him and sympathize with the injured parent. But whence this irresistible impulse to reproach the son and assist the father? Whence that sense of the impropriety which we observe in the conduct of the son? In a word, whence this idea of good and evil? It is impossible that this idea, which checks us in the wrong, haunts us with self-accusations, inspires us with awe in the Divine Presence, should be derived from a sensation of pain or pleasure, as Locke affirms, accompanying certain actions, and from the reflection upon this sensation; nor can it be the result of a mere action of memory or a knowledge of causation: it is different, in both kind and degree, from all the ideas derived from this source. In short, it is evident that conscience is a separate faculty of the mind; differing, indeed, as do all other faculties of the mind, in strength and sensitiveness in different individuals, but never entirely absent. This opinion is upheld by the observations which have been made with regard to the universality of the faculty; appearing, as it does, in the youngest child, the rudest savage, and even, in the form of instincts and tendencies, in the lower animals.

It was supposed that very low savages would have no sense as to right and wrong. The matter was put to the test by a missionary, who asked one of these degraded creatures what he would think if, going past his neighbor's cow when she had fallen and hurt herself, he would not help her. He said he would think he was doing something very bad. Moreover, the feeling of gratitude and filial attachment are sentiments common even to the lowest races.

It is this power which, beginning and continuing its action from earliest infancy, makes man, in whatever condition he may be, a responsible agent; for where there is no law, there can be no transgression and no responsibility. Paul represents all men as being under a natural law, and as sinners because they have broken it. There are only two classes of thinkers who deny the existence of a moral power of the human mind, viz.:

1. Those who take a low view of human nature, and account for all man's moral convictions by attributing them to a law of selfishness and utility. To these we would answer that man *has*, in his own nature, a principle which enables him to discover what is right and what is wrong.

2. Those who maintain that man cannot appreciate moral distinctions separate from what they are taught by revealed religion. These persons should consider that revealed truth requires and implies, not only common-sense intelligence, but also a moral faculty to which to address itself.

Aided by the manifest weakness of these objections, we may safely look upon the moral power as a separate faculty of the human mind, and accept as true the suggestion it offers to the mind, viz., the idea of a divine existence, of our own accountability, and of a judgment, not discharged on earth, but awaiting

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We now proceed to discuss its

PSYCHOLOGICAL NATURE.

I. *The conscience is of the nature of a cognitive power.*

In this respect, it is analogous to sense-perception and self-consciousness; and it has been called the moral sense. Conscience makes known nothing new to the mind; it merely discloses certain qualities of objects already known or certain voluntary states of self. However, this is only one side of the moral power, and that the most insignificant. Locke had admitted the existence of an internal and external sense, and under these heads he had forced conscience. Shaftesbury and Francis Hutchinson, seeing the insufficiency of this classification and still unwilling to introduce a name which would be incompatible with the entire Lockeian system, added the moral power under the name of moral sense. Degrading as this nomenclature is to the high nature of the conscience, it is still descriptive of one of its powers.

II. *It implies obligation.*

a. Authoritatively demands that certain actions be performed.

b. That certain actions ought not to be done.

c. That the performance of the first is approvable, commendable, rewardable.

d. That the performance of the others is condemnable and punishable.

III. *Involves the idea of law.*

In pronouncing these judgments (see II.), the power takes the form of a law and prescribes. It is, indeed, in its nature a law, but not like gravitation or the law of chemical affinity; like the edicts of a government, it commands " with pain."

IV. *Gives the idea of sin.*

Judgment takes place on the basis of our moral cognitions and beliefs. These furnish us the material; and, comparison having taken place, the judgment is pronounced by the moral faculty. Hence we distinguish between greater and less sins.

V. *It is a motive, moves to action as implying obligation.*

VI. *It is attended with emotion.*

Feels approbation and disapproval. This is the essential element in the conscience.

VII. *Claims authority over the whole voluntary state of the mind.*

It looks upon an action or a quality and judges them appetible or inappetible. Judgment and emotion thus go hand in hand, and to this fact Boussac traces the connection between man and virtue. It thus claims authority over all our voluntary states, and every determination of the mind to do or undo falls under its jurisdiction.

VIII. *It is above the other powers as an arbiter and judge.*

IX. *There are beliefs involved in the exercise of the moral power.*

These beliefs refer to things not immediately under our notice. When our own acts fall under the observation of the conscience, this is merely cognition: but when actions or say-ings of others, not before us, come before the conscience, their existence must be believed in; so we believe that benevolence is good, etc. The first, however, is the basis of the second, and the distinction is of value for the sake of accuracy only.

The necessity arises of reviewing the names which have been given to this important faculty of the mind, each of which is intended to convey an idea of its nature and functions. Hutchinson and Shaftesbury call it the "moral sense," so as to reduce it to a mere faculty of perception, a self-consciousness and sense perception. Mackintosh goes a step farther, and accounts for it by association of ideas, somewhat as Locke derives it from sensation and reflection. Buddington speaks of it under the name of "moral reason." Kant calls it "practical reason." (Categorical Imperative.) Butler, 1726, discusses it in his usual thorough manner and calls it a "faculty of reflection." The best term undoubtedly, and one which attaches to it no particular theory, is conscience, *conscientia*, συνείδησις; a term which first appears in Antonine, and, singularly enough, in none of the great Greek philosophers.

The moral faculty, like all other powers of the mind, gives us a separate idea, the idea of *moral good and evil.* If we glance at the various theories as to the source of our ideas, we at once perceive the insufficiency of Hobbes' doctrine of sensation, and of Locke's theory of sensation and reflection. This idea cannot come from a sensation, for none of the six senses will give τὸ δέον. Nor can it be derived from reflection; for reflection can see only what is already acquired and stored away. The previous faculties have given us the true, this one gives us the good. These are not the same; for there may be mistakes without sin, and sins without intellectual weakness. A charitable action is far nobler than a mere intellectual one; but there is no inconsistency between them.

CONSCIENCE IN ACTUAL EXERCISE.

Considering conscience, in actual exercise, it may take various forms.

I. *Slumbering* (somnolent) conscience, which does not wish to be aroused. It does not discover the evil against which it ought to warn us; it is a sleeping watch-dog.

II. *Accusing* conscience. This is apt to be felt even in slight restraints; but when man goes out of his proper course, it is even more decisive.

III. *Excusing* conscience, in which not only the Moral Sense but also the Heart and Will raise up exculpatory thoughts.

a. There is a *law* written on the heart.

b. The *conscience* (συνείδησις) comes in with its joint witness.

c. Together with the thoughts (λογισμοί) either excuses or accuses (Rom. 2; 15.)

These internal discussions may take a variety of shapes. The conscience may attempt to drown them. The effort will be to exculpate, which is accomplished by the thoughts.

IV. *Perverted* conscience. The conscience may become confused in consequence of these internal disputes and see things wrongly; as the eye looking obliquely. Fanatics and persecutors have often been conscientious, but wrongly so. So the Molly Maguires may commit crimes in the interest of their societies; so the trickeries of business men, in a good cause it may be.

V. *Troubled* conscience. Here there is a warfare, in which neither side has gained the victory. The soul becomes sick and wasted; the sins come back into the recollection with terrible power.

VI. *Blunted* conscience. This is the enduring effect of long conflict. It loses all sensibility of touch. It is "seared as with a hot iron."

VII. *Pacified* conscience which involves questions of Ethics. How, when sin has been committed, can the conscience become pacified? Repentance, confession, reformation, reparation, when evil has been done, are all necessary. Men instinctively look about for expiation of some sort. But even then conscience may not be pacified. The law requires love and obedience; that law being broken, expiation is necessary, yet it is not satisfactory. We are ings of others, not before us, come before the conscience, their existence must be believed in; so we believe that benevolence is good, etc. The first, however, is the basis of the second, and the distinction is of value for the sake of accuracy only.

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VIII. *Purified* conscience. The conscience looking to the law becomes purified. Certain men are thus perfectly trustworthy. When a man has met evil and mastered it, no further struggle is necessary; the temptation ceases.

IX. *Approving* conscience. It may take the form of a self-righteous spirit. But a truly good man is kept from this by his humbleness. Every upright man will be more in fear of losing the approval of his conscience than that of his neighbor. This lies at the bottom of self-independence. An evil conscience makes the coward; an approving conscience strengthens the martyr.

PRIMARY APPETENCES.

1. Love of pleasure and aversion to pain.
2. For happiness and against unhappiness of fellow-men.
3. Personal attachments.
4. Native tastes and talents.
5. Bodily appetites (originate in body, become mental.)
6. Love of society. This is an appetence which man may resist with the help of other tendencies. In the fact that this appetence is so universal and so effective, however, lay the supposed merit of the hermit; he showed that he had conquered at least one of his worldly desires, that of congenial company. The tendency to long for society is the result of other feelings springing from the position in which man is placed on earth, and its effects, in private and in public, are universally beneficent and ennobling.
7. Love of esteem. This desire, which Ruskin calls the "passion of genius," is apparent in all men. There are few persons of mind and energy who do not wish to leave a name behind them: some, to leave it printed in the rock; some, in the less enduring bark of the tree; some, in the uncertain surface of the sand.
8. Love of power. This desire exists in all men, and is apt, upon favorable conditions, to become a deep, unruly passion. It increases with gratification; so that every tyrant is the subject of a more tyrannical power than any which he can exercise. The love of power, universal as it is, is the uniting element of the human race.
9. Acquisitiveness. Many philosophers have resolved this into the love of power. It is possible that the analysis is correct; at all events, this tendency itself wields a most powerful influence over the minds and actions of men. The eager accumulation of wealth is not strictly the result of natural tendencies, but of long habits of economy; and though it may have many evil sides, it is certainly advantageous for the progress of civilization.
10. Æsthetic feeling, which grows as men grow in civilization.

friend is taken from us, we grieve at his loss, because the native appentence, which drives us to associate with him, is disappointed. The emotion arises as soon as we receive an idea of or realize the loss we have sustained.

III. *Conscious emotion.*—The excitement is that which comes most under the consciousness of the mind. It is, in fact, the "most present" thing. Nevertheless, it is dependent upon the two previously mentioned elements.

IV. *Organic Affection* is regulated by the nervous temperament of the individual. In some, the grief bursts out in tears; in others, not the less sincere, it is repressed.

We will now discuss and accurately classify these four elements:

I. *Appetences, appetentiæ.*—In all emotion, there is an appetence of some kind, and, though it may not be constantly before the consciousness, it yet acts as a stimulating cause. These appentences may be divided into—

A. *Original or Primary Appetences.*

B. *Acquired Appetences.*—These we are constantly adding to the former.

A. *Primary Appetences.*—Those which act spontaneously, and which men, voluntarily or involuntarily, are inclined to exercise. These appetences are not selfish, but social; and flow from one mind to another. It may be posited that whatever we contemplate as securing pleasure is appetible, and the contrary seems to be such as ought to be avoided. It must not be thought, however, as the vulgar, sensational schools of philosophy are inclined to assume, that this is the only motive influencing the determinations of the human will; but it is one which asserts its right. Moreover, there are certain appetences in man, partly bodily, partly mental, which crave for gratification independently of the pleasure to be derived from their own indulgence. Bodily appetences are appetites, as for food, drink, rest, sex. The mental appetences which appear to be original are those for knowledge, esteem, power, society, property.

PRIMARY APPETENCES.

1. Love of pleasure and aversion to pain.
2. For happiness and against unhappiness of fellow-men.
3. Personal attachments.
4. Native tastes and talents.
5. Bodily appetites (originate in body, become mental.)

6. Love of society. This is an appetence which man may resist with the help of other tendencies. In the fact that this appetence is so universal and so effective, however, lay the supposed merit of the hermit; he showed that he had conquered at least one of his worldly desires, that of congenial company. The tendency to long for society is the result of other feelings springing from the position in which man is placed on earth, and its effects, in private and in public, are universally beneficent and ennobling.

7. Love of esteem. This desire, which Ruskin calls the "passion of genius," is apparent in all men. There are few persons of mind and energy who do not wish to leave a name behind them: some, to leave it printed in the rock; some, in the less enduring bark of the tree; some, in the uncertain surface of the sand.

8. Love of power. This desire exists in all men, and is apt, upon favorable conditions, to become a deep, unruly passion. It increases with gratification; so that every tyrant is the subject of a more tyrannical power than any which he can exercise. The love of power, universal as it is, is the uniting element of the human race.

9. Acquisitiveness. Many philosophers have resolved this into the love of power. It is possible that the analysis is correct; at all events, this tendency itself wields a most powerful influence over the minds and actions of men. The eager accumulation of wealth is not strictly the result of natural tendencies, but of long habits of economy; and though it may have many evil sides, it is certainly advantageous for the progress of civilization.

10. Æsthetic feeling, which grows as men grow in civilization.

11. Moral sentiment.

12. Knowledge. This instinctive appetence appears in children and savages as curiosity; in mature age and civilized condition, as love of travel, reading, studying. Take away this appetence, and the race sinks below the brute.

B. *Secondary Appetences;* that is, such as have grown upon and imply previous ones. While we regard the tendencies above enumerated, and we may add the love of the beautiful and of the good, as having power over all human minds and as existing from the very nature of man's condition, there are some tendencies which are but degenerations or corroborations of the primary ones and which, under certain associations of ideas (pleasure, etc.,) will at last become supreme, and triumph over all the rest by becoming the end, not the means, of life.

Such a secondary appetence is the love of money. It is not a natural tendency; but, because money is a means of gratifying the love of property, which is a native appetence, money becomes an object whose acquirement and the love of whose possession are passions in some minds. A certain man is said to have died easy, after he had cheated the undertaker with whom he had been bargaining for his burial. Secondary appetences may be inherited and may become primary in effect.

II. *Idea.*—In all emotion. there must be an idea of the object, either as being fitted to gratify or to disappoint an appetence. The mere existence of the appetence is not sufficient to call forth emotion; there must be an idea which rouses the appetence to come forth, causing conscious emotion to follow. If the object be actually present, the idea is immediately given by perception; if absent, it is the result of re-presentation (phantasm).

To prove that an idea is necessary in order to any emotion, let any man suddenly, while in such a state, arrest himself; he will find that there is an idea in his mind, which is no sooner banished than the emotion ceases. For example, I hear that my friend has fallen down a precipice and been killed. I am roused to the highest emotion by the idea of my unfortunate friend. While hurrying to the spot, I hear that it was not my friend who fell, but some person strange to me. My emotion the heart. This is best accomplished by presenting some individual case.

5. *By concrete language.*—Language is first synthetic then more analytic; it is then more suited to philosophic accuracy, but less adapted to poetry and emotion.

6. *Feeling is called forth by imaginary scenes.*

III. *Excitement.*—This conscious emotion is always joined with a feeling of attachment or repugnance; this is a state very different from the state of emotion, or rather motion, in which the mind always is when under the influence of feeling: it is the latter, with the former superadded. This excitement is that one of the four elements of emotion which most frequently comes under our notice, and it is the basis and ultimate condition of choice.

IV. *Organic Affection.*—Physiology throws little light upon the manner in which these affections are brought about, and upon the question whether there is a special organ of emotion, and, if so, where it is situated. It is probable that there is such an organ and that its seat is the cerebrum, but not in the gray matter. The base of the cerebrum is the seat of the organic sensation, and that of the emotions, according to Sir Chas. Bell, is probably near by. Most emotions, however, affect the respiratory organs and the nerves, which spread over the face, and acted upon by the passions, give expression to the countenance. It appears, also, that a moderate degree of emotion is good for mind and body; but high sentiment or feeling, unless relieved by action must prove dangerous.

It is curious to observe the effect of emotion upon the bodily organism: fear and joy affect the heart; disappointment and envy, the stomach and bowels; malice and envy, the liver. The passions manifest themselves, in their effects upon the bodily organs, thus:

Fear prevents the blood from flowing, and produces paleness. Joy quickens the circulation of the blood; the heart beats loudly, the eyes glisten, smiles spread over the countenance, sometimes tears burst forth, sometimes the hands are involuntarily clapped. Sorrow produces violent agitation and restlessness of the body, passionate beating of the breast, tearing of the hair, and violent tears; lassitude and dejected countenance follow. Anger causes the body to assume a threatening attitude; the face becomes red, the eyes flash, the muscles become strained. Wonder first takes away the power of utterance, then causes frequent exclamations; the eyes are fixed upon the object, or roll around vaguely searching for information, and the mouth hangs open.

Note I. Recapitulation.—It must be remembered, with regard to the appetences, that as they can lie hidden in the breast for years and years, they are the agents which cause sentiments to continue from day to day, from year to year. Moreover, in regard to the idea, it must not be forgotten that it is always indispensable in order to call forth emotion. Thus we explain the indefinite longing in youth; the propensities have not yet found a suitable and well-defined object. In maturity, the appetences have found their spheres, and the waters, which once would flow this way and that way, have now found their stated channel. Furthermore, there must be consciously before the mind, accompanied with attachment or repugnance, an excitement. In this form, instinctive attachments proceed, but always subject to the will.

Note II. Classifications.—The emotions are so numerous that a classification becomes desirable. All our emotions go in pairs, so that to every emotion contemplating the good, in the sense of appetible, there corresponds an emotion contemplating the evil in the sense of inappetible: hence, well-defined as this line of division may be, there is is no ground here upon which to base a rational classification. A convenient *fundamentum divisionis* is afforded by considering whether the emotion concerns things animate or inanimate. Hence we derive the following division:

I. *Emotions contemplating animate objects;* that is, ourselves and other persons: for man is capable the heart. This is best accomplished by presenting some individual case.

5. *By concrete language.*—Language is first synthetic then more analytic; it is then more suited to philosophic accuracy, but less adapted to poetry and emotion.

6. *Feeling is called forth by imaginary scenes.*

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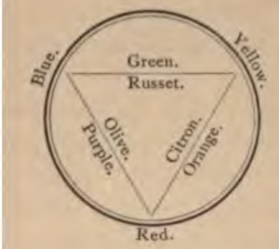
1. Physical Beauty, which, whenever present, puts the mind in a state of emotion. It manifests itself in—

α. Sound—the harmony or discord of music.

β. Forms, between whose symmetrical lines and the undulations of sound there is an analogy.



γ. Colors, in whose composition the complementary ones are always beautiful beside each other. Red, yellow, blue, make a beautiful composition, because green, which is the complement of red, is composed of blue and yellow.

2. Intellectual Beauty in certain harmonies and proportions as viewed by the mind.

b. The Picturesque. This, as it has been rightly defined, is everything which gratifies the phantasy.

c. The Sublime. This, as all philosophers agree, is whatever impresses one with the idea of the vast. "Two things," says Kant, "are sublime—the ocean and the law of God."

d. The Ludicrous. The essential requirement is that a thing, in order to be ludicrous, must follow another thing of such a nature that it was not expected. Incongruity is implied in both wit and humor.

The idea which we derive from the power of emotion is that of the lovely and the hateful; the one as desirable, the other as to be avoided. There are in nature certain objects to which we are attached; these we call beautiful: others repel us, and we call them hateful. It is important that man should possess affection in order rightly to understand the nature of God as a Divine Being, capable of affection, as is expressed in the doctrine that "God is love."

CHAPTER VIII.

III.—WILL.

Note.—When dwelling on consciousness, we saw that it was not generally admitted to be a faculty; yet we were obliged to pronounce it such. So with the power or faculty of volition, we are again obliged to oppose a certain class of philosophers by maintaining that it is a separate faculty of the mind. But its relation to the other powers which we employ in all our mental exercises, is one of supremacy, as that of consciousness is one of constant co-operation; hence, will and consciousness are, indeed, the highest faculties of the human mind.

The common use of the language bears testimony to the conviction, which possesses all men, that the discursive and motive powers are separate from each other. We refer to the ancient and still common distinction between head and heart: a distinction, however, which it is difficult to draw with accuracy, since, in popular language, the heart includes faculties, such as the imagination, which ought to be attributed to the head; while, on the other hand, it does not seem to embrace the emotions. Thus, when we ask whether religion is a matter of the head or heart, we must stoop to definitions. The heart, in the scriptural sense, means whatsoever passes on within, and it embraces conscience, emotions and will, besides the discursive reasoning faculties; in this sense, religion is, undoubtedly, a matter of the heart. In the sense, however, in which we are wont to use the term heart, religion is certainly not merely a matter of emotion and feeling.

I.—THE PSYCHOLOGICAL NATURE OF THE WILL.

1. *It cannot be resolved into any other power nor, by combination, be reduced to any other power.*—While conscience, emotion and will are all closely connected, their difference is one of

kind as well as of degree; and the ideas which they convey are peculiar to each one, respectively. Will associates itself with every faculty, but they are all inferior to it and cannot represent it; they may institute but they cannot constitute it.

2. *The essential element in will is choice;* that is, the power of choosing or rejecting (optative power.) When one or more objects are placed before us, the emotions give us a feeling of attachment or repugnance toward them; but it is exclusively the operation of the will which makes us accept or reject them. When the eating of the forbidden fruit was opposed to God's command, man looked at it and admired it without transgression; for this was merely emotion. At last appeared the wish, and finally the determination, to have it; and the voluntary faculty of the mind gave birth to sin. In all this, the will was associated with emotion; but so distinct it is from this faculty, that the connection is by no means necessary: thus, the will required for study is utterly free from emotion. To express this truth, most philosophers distinguish between *desire* and *volition.* Desire is here synonymous with mere emotion, and can pertain to things which never were, nor can be, in existence. It proves a distinction between *wish* and *volition:* in the former there is merely a longing for the possession of a certain object; in the latter there is a well-defined determination to take a step toward gaining it. Both of these elements, however, belong to the constitution of the will—the operative faculty. Wishes and emotional attachments, moreover, seem to run into each other; for emotions ought naturally to produce wishes. While, therefore, the distinction between emotions and will is one of kind, that between desire and volition is merely one of quantity and circumstances: hence, the former distinction is of greater importance than the latter; that is, the distinction is important which places, on one side, *emotions,* and, on the other, *will,* including desire and volition. As to the moral qualities of the one or the other, mere feeling is neither virtuous nor vicious; but wishes and desires may be holy or blamable, according as they are exercises of the will.

3. *It may associate with every other power of the mind.*

a. It may exercise influence over the senses. It has already been made clear that distance by the eye and direction by the nose or ear are acquired; but in order to this, there must be attention and exercise of the will.

b. Our self-consciousness. Its influence here is very marked. We are indeed conscious of all our states; but to observe them more closely, we must use the will. We owe to the will the power of attention, by which, when a number of objects are brought before the mind by any one or by a combination of the senses or by self-consciousness, we may single out one and give it our entire observation.

c. Over the reproductive powers and the train of ideas. Here the power of the will manifests itself either directly, by keeping an idea or feeling before the mind, or indirectly, by summoning up a certain idea, which will bring with it a train of associations. And it can banish these by plunging into another train. Hence arises the distinction between ἀνάμνησις, the voluntary recollection, and μνήμη, the spontaneously operating and recalling memory.

d. Over the judging and comparative powers. "The heart sways the head" is an old saying, and it is true. In all judgment, there is comparison. Now, the apprehension may be erroneous and the representation may be a misrepresentation; and the judgment, proceeding upon this false apprehension, will naturally be wrong. Here, then, the will can exert its influence by representing things, not as they are, *per se*, but as it would please us to have them be.

e. Over the conscience. This, according to Butler, is a reflex faculty, and the adequate or inadequate result of its reflections depends upon the accuracy or inaccuracy of the representation upon which the judgment is passed. Hence, the will, by its power to represent things in a favorable or unfavorable light, must have a great power over the workings of this faculty. This explains the frequent perversions of conscience.

f. Over the emotions. The influence of the will over the emotions is manifested in two ways, viz., by generating appetences, upon which the emotions depend, and by means of the power of regulating the train of thought.

II.—THE FUNCTIONS OF THE WILL.

1. *It is the seat of responsibility.*—Man can be responsible only for those acts which are voluntary; a mere exercise of the intelligence, according to natural laws, can be neither good nor sinful. Nor does virtuousness and sinfulness lie in the mere possession of conscience and the capability of emotion; but only where choice enters as an element of the action.

This mode of looking at the subject has, however, the peculiarity that it gives the will an uncommonly wide range. When we confine responsibility to the voluntary element, it must be understood that every action may be voluntary. The eyes are given us for sight, and there is no harm in their employment; but there is harm in it as soon as we open them to corrupt scenes and obstinately close them to our duties. "No man is so blind as he who will not see." So it is, also, in the operations of the conscience and of the emotions. The will can misdirect any feeling, even against the dictates of reason. Sincerity and candor of spirit are, therefore, ever the surest security of virtuousness. It is thus by the inward purpose, the creature of the will, that certain actions, bad in themselves, can become virtuous, and *vice versa.* Furthermore, it is from the degree of voluntariness which enters into it that love becomes more or less meritorious. In all affection, in love in the highest sense, there is more than a mere feeling of emotion. So far as love does not go beyond that, it is merely instinctive attachment; well-wishing must be combined with it, and this, a voluntary element, renders it meritorious. This is charity in the Scriptural sense.

2. *It gives freedom and the idea of freedom.*—It is the possession of the will and of the power of exercising it which makes us free agents. In all other faculties, there is freedom only so far as they are guided by the will; in all other respects they are subject to necessary laws. But in the will there is (1) freedom, and (2) consciousness of freedom, because we know that with us stands the choice of our way. To feel our superiority thus becomes a source of elevation to us, and, if we misuse it,

a source of anguish. It is important to recognize and bear in mind this fact regarding the will. It is not enough to say that we have liberty to do whatever we choose, for this may be impossible by natural or outward circumstances; but it is the essential freedom of choice which constitutes the essence of manhood. It must also be remembered that the idea of freedom is one which none of the unfree faculties, with which we have hitherto been occupied, can give; it is the offspring of the voluntary powers, and is one of the highest ideas of the human mind.

CONCLUDING REMARKS.

A. *It is not to be understood that these faculties are separate existences,* distinct as the limbs of the body. They all belong to one inseparable mind, and constitute its unity. When we speak of self-consciousness, we mean the mind as looking upon its own operations; when we speak of conscience, we mean the mind, the same mind, as looking upon and judging about the good or the evil, etc.

B. *It is not claimed that the foregoing arrangement of the faculties is a perfect one, but merely a temporarily good one.*

The arrangements formerly in use are chiefly these:

a. The old, two-fold, Aristotelian division into gnostic and orectic. This has appeared in all ages; its influence is seen in the writings of Cicero, and in the productions of modern literature and philosophy. But it is insufficient, because it must assign conscience to both.

b. The three-fold Kantian system, to which that of Hamilton adheres, into cognitive, conative and feeling. But it is hard to make the first embrace imagination, and conscience must be again divided. Lastly, feeling must include sensation with emotion.

C. *The faculties have been so unfolded as to give, in their succession, a natural history of the mind.*—We began with perception and consciousness, which presuppose no other faculties and no former knowledge, and arranged after these the rest, each successive faculty presupposing the former.

D. *It has been shown that each faculty gives a new idea,* which could not be derived from any other. In opposition to the old Lockeian theory, that all our ideas come from sensation and reflection, it has been shown how memory gives the idea of time; imagination, of the infinite; comparison, of the relations; conscience, of good and evil; emotion, of the lovely and the hateful; will, of freedom; self-consciousness and sense-perception, the knowledge of existing objects.

E. *In unfolding the faculties, it has been shown that they obey laws of immediate and ultimate perception.*—The science which looks at these laws is metaphysics proper.

CHAPTER IX.

ANALYSIS OF THE SUBJECT.

BEGINNING WITH THE FACULTIES OF THE MIND.

COGNITIVE POWERS.

I. Simple Cognitive or Presentative.
  1. Sense-perception.
  2. Self-consciousness.
II. Reproductive.
III. Comparative.

MOTIVE POWERS.

I. Moral.
II. Emotional.
III. Will.

COGNITIVE POWERS.

I. Simple Cognitive.

A. *Sense-perception.*
  Smell.
  Taste.
  Hearing.
  Touch. *a.* Touch Proper.
    b. Muscular Sense.
  Sight.

B. *Self-consciousness.*
  Knowledge of our mind.
  Knowledge of self.

A. *Sense-perception;* the external sense, an act of the mind, senses act as instruments:

a. This knowledge original.
b. " " immediate or intuitive.
c. " " positive.

Theories.

Ideal or Representative Theory:

1. Grosser Form. Idea a material substance, effluvia.
   - Democritus, Leucippus, } Atomic School, (400–361.)
   - Lucretius—Epicurean.
2. Spiritual Form. Mind contemplates a (spiritual) image.

Descartes, 1635:

1. An affection of the brain.
2. Idea in the mind.
3. Mind looks on idea.

Malebranche, 1674.

Locke, 1690.

Berkeley, 1709.

Hume, 1750.

Inferential (sensational) School:

Dr. Thomas Brown's process, 1810.

1. Impression on organism.
2. Sensation in mind.
3. Inference as to external existence.

Relative Theory. Hamilton, 1845, and Bain, 1860–1869.

No positive knowledge of things.

Things perceived under a relation.

Natural Realism: mind looks on objects immediately through instrumentality of the senses.

Positions: to suppose an intervening link between mind and object—

I. Is mere hypothesis.

II. Gives no explanation not otherwise more satisfactorily given.

III. Instead of simplifying, it makes the subject more complex.

Questions:

1. How sensation comes?
2. How mind looks on it?
3. How inference comes?

Distinctions:

I. Between sensation and perception.

P=knowledge of an object presenting itself.

S=feeling, within organism, associated with P.

II. Between original and acquired perception.

O=derived from no other source.

A=obtained by aid of experience and reason.

Original....Smell.

O=perceive our olfactory nerves as affected—by what?—is answered by A P.

Taste.

O=palate as affected—by what?—is answered by A P.

Hearing.

O=Organs as affected.—The affecting object, distance, and direction known by A P.

Touch.

a. Touch Proper. Dr. Chas. Bell.

O=organism as affected.—Strong in lips and middle finger.—Sensation felt in that part of the body to which extremity of nerve reaches.—Its localizing character.

Case of Schmitz.

" " toll-keeper at Halle.

" " Valentin's young girl without hand.

b. Muscular Sense. Dr. Thos. Brown.

O=external objects as existing because resisting our energy.

N. B.—Sense of temperature to be referred to sense of touch in general.

Sight.

O=colored surface (Hamilton's demonstration) and direction (Trichinetti case.) Distance an A P is proved by—

1. Chiselden's case; young man, born blind, thought objects touched his eye.

2. Franz' case; young man, born blind, 27, could not distinguish a solid from a plane.

3. Trichinetti case; two children, born blind and afterwards cured, orange at a distance seemed to touch the eye, girl reached for it in straight line.

N. B.—Refutes idea of Berkeley, (1709), and Mill, (1860,) that extension is derived from time used in glancing over it.

Original perception:

By all senses, knowledge of bodily frame.

By all senses, knowledge of things extended.

By *two* senses, knowledge of things external.

Acquired Perceptions. In hearing, smell, taste, touch proper, acquired except knowledge of organs as affected. In sight, tance is acquired by—

1. Change in eyeball.
2. Parallelism of rays.
3. Binocular vision.
4. Variation in size.
5. Distinctness of outline.
6. Number of intervening objects.
7. Comparison.

III. Between primary and secondary qualities of matter.

P=such qualities as are common to all bodies and involved in all perceptions.

S=such as are not properly qualities of matter, but affections of the organism.

Classifications:

Aristotle, common and proper.

Locke: primary, viz., solidity, extension, figure, rest or motion, number, and he seems to add situation and texture: and secondary, such which, having no real existence in themselves, are merely powers to produce sensation by means of the primary qualities.

Reid: primary, viz., extension, divisibility, figure, motion, solidity, hardness, softness, fluidity: and secondary. The ground of distinction is that the senses give direct and distinct knowledge of primary and obscure of secondary:

Hamilton : primary :

I. Occupying space.

- Extension
  - Divisibility.
  - Size
    - Density.
    - Rarity.
  - Figure.
- Ultimate Incompressibility.

II. Being contained in space.

- Mobility.
- Situation.

To these he adds secundo-primary and secondary.

Hence, Dr. McCosh : primary :

1. Extension.
2. Divisibility.
3. Size.
4. Density and Rarity.
5. Figure.
6. Incompressibility absolute.
7. Mobility.
8. Situation.

Qualities of matter, known to intuition, are divided into three classes—

1. Those which relate to space.
2. Those which one body exercises in reference to another.

Refutes—*a.* No quality known but extension.
b. Matter=combination of forces.

3. Those which body exercises with reference to mind.

B. *Self-consciousness.*

1. Takes cognizance of mind in its present state.

2. Is an attribute exercised whenever mind is intelligently exercised.

3. By continuity and memory, gives idea of identity.

4. May voluntarily take more special cognizance of mind.

Self-consciousness is a separate faculty, because—

1. Object contemplated is different from that contemplated by any other faculty.

2. It is a separate source of knowledge.

Recapitulation.

I. Amount of knowledge obtained by simple cognitive powers.

A. Both faculties, S. P. and S. C., give knowledge. Refutation of Locke.

B. Both faculties, S. P. and S. C., give knowledge of individuals, and knowledge in the concrete.

C. By both, we know objects as possessing being.

1. Do *not* know being in the abstract by simple cognitive powers.

2. Do know being as independent of cognition. Refutation of Kant.

D. By both, we know mind and body as exercising potency.

Note.—Being, independence and potency=substance. Two derivations; sub-sto and sub-sisto, latter true.

II. Knowledge peculiar to each of the simple cognitive powers:

A. By sense-perception, we know—

1. Externality.

2. Direction, (implying extension.) Motion also intuitively perceived, but requires something more than sense-perception.

B. By self-consciousness, we know—

1. Personality.

2. Existence and qualities of mind.

II. Reproductive Powers:

1. Retentive.
2. Recalling, (phantasy.)
3. Associative.
4. Recognitive.
5. Compositive.
6. Symbolic.

1. Retentive; by which we are able to retain what has once been before us. The possibility of this depends—

1. On state of brain.

2. On amount of attention in first perception.

2. Recalling; by which we call up, by means of a phantasm, what has been before us.

Difference between phantasm and conception. We can recall—

(1.) By P. all we have by the senses, *e. g.*, a single rose.

(2.) By C. all we have by consciousness, *e. g.*, the class roses as a whole.

3. Associative; by which we are able to follow one train of thought in preference to desultory thinking. The regular succession of ideas is proved in two ways—

1. By following train of thought, we can trace connection between the ideas.
2. It can often be discovered what occasioned curious thought.

The laws of this power are:

A. Primary:
  - *a.* Contiguity.
    - 1. Repetition, (succession.)
    - 2. Co-existence.
  - *b.* Correlation.

B. Secondary:
  - *a.* Native tastes and talents.
  - *b.* Energy of feeling, intellect and will.

A. Primary; those laws by which all thoughts are regulated in their succession:

a. Continuity; that is, things which have been associated in the mind tend to recall each other.

1. Repetition; same follows the same.

Note.—Here comes in habit, which—

1. Has a tendency to repeat acts.
2. Gives facility in their performance.

2. Co-existence (redintegration); things, having been in the mind together, tend to recall each other.

b. Correlation; that is, things which are related to each other tend to suggest each other. Law of several kinds.

Note.—Memory is two-fold:

1. Contiguity.
2. Correlation. (This is the higher.)

2. It is a separate source of knowledge.

Recapitulation.

I. Amount of knowledge obtained by simple cognitive powers.

A. Both faculties, S. P. and S. C., give knowledge. Refutation of Locke.

B. Both faculties, S. P. and S. C., give knowledge of individuals, and knowledge in the concrete.

C. By both, we know objects as possessing being.

1. Do *not* know being in the abstract by simple cognitive powers.

2. Do know being as independent of cognition. Refutation of Kant.

D. By both, we know mind and body as exercising potency.

Note.—Being, independence and potency=substance. Two derivations; sub-sto and sub-sisto, latter true.

II. Knowledge peculiar to each of the simple cognitive powers:

A. By sense-perception, we know—

1. Externality.

2. Direction, (implying extension.) Motion also intuitively perceived, but requires something more than sense-perception.

B. By self-consciousness, we know—

1. Personality.

2. Existence and qualities of mind.

II. Reproductive Powers:

1. Retentive.	4. Recognitive.
2. Recalling, (phantasy.)	5. Compositive.
3. Associative.	6. Symbolic.

1. Retentive; by which we are able to retain what has once been before us. The possibility of this depends—

1. On state of brain.

2. On amount of attention in first perception.

2. Recalling; by which we call up, by means of a phantasm, what has been before us.

(1.) of contiguity; (2.) of correlation; (3.) of energy of feeling, intellect, will.

5. Compositive, putting old things into new forms, involves—

a. Diminishing power.
b. Enlarging "
c. Separating "
d. Compounding "

Genius.

Here comes in Imagination.

I. Its nature. Reproduces old objects in new forms; ways constructive; has powers of retention, phantasy, association of ideas, composition.

1. An imaging power.
2. A constructive power.

Imagination gives nothing new, but uses old cognitions.

II. Its uses. 1. In science.
2. To awaken sentiment—novels.
3. Gives idea of the infinite.

With regard to the infinite:

A. Negative propositions.
  a. Mind can form no adequate apprehension of it.
  b. Mind can form no adequate logical notion of it.
B. Positive propositions.
  a. Mind apprehends something beyond its widest image and concept.
  b. Must look upon infinity as incapable of increase.

III. Its abuses.

IV. Cultivation of imagination.

Lay up a store of noble images.

6. Symbolic; the power of thinking by means of symbols.

Mere *φαντάσματα* not sufficient for all concepts, therefore we must have a *νόημα.*

Power of language conditioned by this—

1. A mental power and disposition to think in symbols.
2. An original capacity for articulate speech.

III. Comparative; by these faculties we discover the relations between objects. Three propositions—

a. Hitherto all ideas are singular and insufficient.

b. The mind does not begin with comparison; but with things; then their relations are discovered.

c. These relations are real.

Primary judgments.

I. Identity and Difference.
II. Whole and Parts.
III. Resemblance.
IV. Space.
V. Time.
VI. Quantity.
VII. Active property.
VIII. Cause and Effect.

Note.—(1.) Each proceeds on the knowledge of objects.
(2.) Mind can discover more than relations of resemblance and difference.

I. Identity: Identity and Difference discovered by same power,—by simple cognition; we know every object to have being; continuousness of being=identity. Memory sometimes deceitful. Evidences of Identity:

a. Self; evidence of identity by consciousness, memory and comparison; three tests of intuitive conviction of personal identity.

b. External objects; no intuitive means of discovering identity; only "moral certainty."

Law takes three forms—

1. Identity proper: A is A; the law requires us to recognize the same to be the same, in different times, forms and circumstances.

2. Contradiction: A is not A; we must think it impossible for the same thing to be and not to be at the same time.

3. Excluded middle: A is either B or not B; we are required, when two propositions are in the relation of contradictories, to think one must be true; both cannot be.

Kant's Distinction of Analytic and Synthetic Judgments.

II. Whole and Parts; Analysis and Synthesis; Power of Comprehension. In this relation, we contemplate a part as a part of a whole, and the whole as made up of parts. Use in mathematics and other sciences of intuitions of whole and parts.

Propositions:

1. Abstract implies concrete.
2. When concrete is real, abstract is also real.

III. Resemblance: primary notions are of individuals. Then we rise to generals and begin to generalize and form concepts.

Three laws:

a. Generalization proceeds on common properties of objects.

b. Mind has tendency to discover resemblances and make classifications.

c. Difference between Identity, Resemblance and

1. Universals imply singulars.
2. When singulars are real, universals are real.
3. Whatever is predicated of class, may be of members.

Equality.

IV. Space. This faculty, like others, depends on simple cognitive powers; some unit always fixed on.

V. Time; gives us time in the concrete, and we perform the abstraction; great events starting points.

VI. Quantity. Locke's Proportion, Brown's Degree and Proportion, and McCosh's More and Less.

To this belongs Number.

Whewell; number given by memory and succession.

McCosh; number given by memory, succession, and a general power of discovering relations of quantity.

VII. Active Property. We cannot know self, or body acting on self, except as possessing active properties. By virtue of them, we draw distinctions, by separating resemblances between sense-perception and intelligence, will, emotion, etc.

VIII. Cause and Effect. Causation implied in all knowledge, past and future; not the same with uniformity of nature to which there may be exceptions; implies intuitive knowledge of substance exercising power.

Relation of cause and effect considered:

A. Objectively, *i. e.*, what it is in itself.

1. Causation implies substance with properties.
2. Duality or plurality, both of cause and effect.

B. Subjectively; *i. e.*, what faculty perceives it. Causation is not experiential. From experience we expect a certain effect, or believe it probable, but have thereby no conviction of its necessity or certainty. Hence, we conclude causal judgment is intuitive; (1) it is self-evident, (2) necessary, (3) universal.

We are not compelled to seek for an infinite series of causes.

Psychological Nature of the Discursive or Logical Faculties.

I. Simple Apprehension; we apprehend objects or obtain notions.

1. Simple notions or singular notions; that is, those obtained by sense-perception and self-consciousness.
2. Abstract notions, from comprehension; are notions of attributes.
3. General notions, by faculty for resemblance.

II. Logical Judgment: compare two conceptions, or an intuition and a conception. Judgment in (*a*) comprehension, (*b*) extension.

III. Reasoning: same operation as judgment, except here we have three instead of two terms. Reasoning in comprehension and extension may be interchanged.

General Remarks on Comparative Faculties.

1. These faculties are in all men.
2. They have a tendency to operate.
3. They are admirably suited to our situation.
4. Correspondence between subjective and objective worlds. Not result of unity of thought and being, nor of a gradual accustoming process, but of an original adaptation.
5. Differ widely in different individuals.

6. All these relations, except that of space, exist both in mental and material objects.

Summary of the Acquisition of Knowledge.

MOTIVE POWERS.

I. Moral: Concience, *conscientia*, *συνείδησις*.

1. There is such a power. Man's natural pleasure in good and aversion to evil prove it. It cannot come from sensation and reflection, for it is in all men in all conditions.

Two classes deny—

a. Those who take a low view of human nature and attribute moral convictions to selfishness and utility. But man has a moral principle.

b. Those who maintain man cannot appreciate moral distinctions apart from religion. But revealed truth presupposes a conscience.

2. Its nature.

Negative Propositions.

I. Decision of conscience does not make an action good or bad.

II. Possession of conscience does not render one good.

III. Conscience not incapable of perversion.

Positive Propositions.

I. Conscience is of the nature of a cognitive power.
II. Implies obligation.
III. Involves idea of law.
IV. Gives idea of sin.
V. Moves to action.
VI. Feels approbation and disapprobation.
VII. Claims authority over whole voluntary state of the mind.
VIII. Is above other powers as an arbiter and judge.
IX. Beliefs are involved in its exercise.

3. Names.

Hutchinson and Shaftesbury; Moral Sense. (To conform with Locke's external and internal sense.)

Buddington; Moral Reason.

Kant; Practical Reason (Categorical Imperative.)

Butler; Faculty of Reflection.

The best name is conscience, *conscientia*, συνείδησις; this first occurs in Antonine.

4. The idea it gives; moral good and evil.

Criticism of Locke's doctrine of the source of all our ideas.

5. Conscience in actual exercise.

I. Slumbering, unwilling to be aroused. Sleeping watch-dog.

II. Accusing, felt even in slight sins.

III. Excusing—

Discussion of Rom. 2:15.

(*a*) there is a heart-written law;

(*b*) conscience a joint witness;

(*c*) and with thoughts either accuses or excuses.

IV. Perverted.

V. Troubled by recollection of sins.

VI. Blunted by continued sin.

VII. Pacified by repentance and expiation.

VIII. Purified by the law.

IX. Approving; may be in a self-righteous sense, lies at basis of independence.

II. Emotional.

Elements involved:

I. Appetence; at the basis of all emotion.

II. Idea; apprehension of something as apt to gratify or disappoint. Without it, no emotion.

III. Excitement; with attraction or repugnance.

IV. Organic Affection; result of nervous temperament of individual.

Psychological nature of these elements.

I. Appetence, *appetentia*, the stimulating cause.

N. B.—Error of sensational school in overrating its importance.

A. Primary Appetences; that is, those acting spontaneously. They are bodily and mental.

1. Love of pleasure and aversion to pain.
2. For happiness and against unhappiness of fellow-men.
3. Personal attachments.
4. Native tastes and talents.
5. Bodily appetites.
6. Love of society.
7. Love of esteem.
8. Love of power.
9. Acquisitiveness.
10. Æsthetic feeling.
11. Moral sentiment.
12. Love of knowledge.

B. Secondary Appetences; grow upon and imply the primary and are mostly degenerations of them, thus becoming the object rather than the means of life.

II. Idea; in all emotion there is an idea, apt to gratify or disappoint an appetence; mere existence of the latter causes no emotion. Hence—

We can feel emotion at fictitious object, if idea is present.

Feeling cannot be compelled; will influences indirectly.

Emotion is called forth by contemplating individual objects.

1. Idea is singular, not abstract.
2. Feeling is roused by idea of individual objects.
3. Feeling is roused by idea of personal God.
4. In rhetoric, present individual object.
5. By concrete language.
6. By imaginary scenes.

III. Excitement; with attraction or repugnance. This element most frequently under our notice.

IV. Organic Affection. Physiology gives little information. The seat of emotion at base of brain, but not in gray matter; thence, acting on nerves which make impression. Different effects of emotion.

Note I.—Recapitulation.

Appetences cause sentiments to continue.
Idea indispensable to call forth emotion.

Note II.—Classifications.

I. Emotions concerning animate objects.
  1. Immediate emotions.
  2. Retrospective "
  3. Prospective "

II. Emotions concerning inanimate objects.
  a. Beauty; not mere association of ideas.
    1. Physical; sound, form, color.
    2. Intellectual.
  b. Picturesque; whatever gratifies phantasy.
  c. Sublime; whatever gives idea of the vast.
  d. Ludicrous; implies incongruity.

Idea is that of the hateful and the lovely.

III. Will; a separate faculty and cannot be resolved.

I. Its psychological character.
  1. Cannot be resolved or reduced to any other power.
  2. Essential element is choice.

Distinguish { Emotion and Will.
Desire and Volition.

  3. May associate with every other power of the mind.
    a. May influence senses.
    b. " " consciousness.
    c. " " reproductive powers.

Directly, by keeping idea present.

Indirectly, by bringing up other ideas followed by hosts of associations. In the same way we can banish certain feelings. Difference between *ἀνάμνησις* and *μνήμη*.

    d. May influence judgment and comparison.

By misrepresentation.

    e. May influence conscience, by misrepresentation.
    f. May influence emotions.

By generating appetences.

By sway over train of thought.

2, Its psychological functions.

1. It is the seat of responsibility.

   Man is responsible only for what he does voluntarily; but will can make every action so.

2. It gives freedom and the idea of freedom.

   This idea came from no other source, for it lies in no other; all the other faculties necessary.

CONCLUDING REMARKS.

A. Faculties not separate existences; belong to the mind.

B. Arrangement of faculties not perfect, but temporarily good.

C. Faculties so unfolded as to give natural history of the mind.

D. Each faculty gives a new idea.

E. Faculties obey laws.

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